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MT. SINAI HOSPITAL REPORTS

VOLUME II.

FOR 1899 AND 1900.

EDITED FOR THE MEDICAL BOARD

BY

PAUL F. MUNDÉ, M.D., LL.D.

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MEDICAL AND SURGICAL STAFF FOR 1899 AND 1900.

CONSULTING PHYSICIANS.

A. JACOBI, M.D. E. G. JANEWAY, M.D.

CONSULTING SURGEONS.

THOMAS M. MARKOE, M.D. DANIEL M. STIMSON, M.D.
WILLIAM F. FLUHRER, M.D.

ATTENDING PHYSICIANS.

JULIUS RUDISCH, M.D. MORRIS MANGES, M.D.
ALFRED MEYER, M.D. N. E. BRILL, M.D.
HENRY KOPLIK, M.D.
(*Diseases of Children.*)

ATTENDING SURGEONS.

ARPAD G. GERSTER, M.D. HOWARD LILIENTHAL, M.D.

GYNECOLOGIST.

PAUL F. MUNDÉ, M.D.

OPHTHALMIC AND AURAL SURGEON.

EMIL GRUENING, M.D.

DERMATOLOGIST.

S. LUSTGARTEN, M.D.

NEUROLOGIST.

B. SACHS, M.D.

ADJUNCT ATTENDING PHYSICIANS.

D. H. DAVISON, M.D. HENRY W. BERG, M.D.
HENRY HEIMAN, M.D.
(*Diseases of Children.*)

ADJUNCT ATTENDING SURGEONS.

A. A. BERG, M.D. JOSEPH WIENER, JR., M.D.
A. V. MOSCHCOWITZ, M.D. CHARLES A. ELSBERG, M.D.

ADJUNCT GYNECOLOGIST.

JOSEPH BRETTAUER, M.D.

ADJUNCT OPHTHALMIC AND AURAL SURGEONS.

CHARLES H. MAY, M.D. CARL KOLLER, M.D.

ADJUNCT DERMATOLOGIST.

HERMAN GOLDENBERG, M.D.

PATHOLOGIST.

F. S. MANDLEBAUM, M.D.

ASSISTANT PATHOLOGIST.

E. LIBMAN, M.D.

ADMITTING PHYSICIAN.

MAX ROSENBERG, M.D.

HOUSE STAFF.

From January 1st to June 30th, 1899.

House Surgeon,
SIDNEY ULFELDER, M.D.

Senior Assistant Surgeon,
L. W. ALLEN, M.D.

Junior Assistant Surgeon,
L. B. MEYER, M.D.

First Externe,
I. STRAUSS, M.D.

Second Externe,
M. THORNER, M.D.

Provisionals,
E. A. ROSENBERG, M.D.
E. D. LEDERMAN, M.D.

House Physician,
W. G. ECKSTEIN, M.D.

Senior Assistant Physician,
A. G. FOORD, M.D.

Junior Assistant Physician.
L. A. S. BODINE, M.D.

First Externe,
EUGENE H. EISING, M.D.

Second Externe,
J. W. BECKER, M.D.

Provisionals,
H. B. SCHWARZ, M.D.
A. W. ROFF, M.D.

From July 1st to December 31st, 1899.

House Surgeon,
L. W. ALLEN, M.D.

Senior Assistant Surgeon,
L. B. MEYER, M.D.

Junior Assistant Surgeon,
EUGENE H. EISING, M.D.

First Externe,
J. W. BECKER, M.D.

Second Externe,
EDWIN BEER, M.D.

Provisionals,
CHAS. A. ROSENWASSER, M.D.
J. HOWARD STAUB, M.D.

House Physician,
A. G. FOORD, M.D.

Senior Assistant Physician,
L. A. S. BODINE, M.D.

Junior Assistant Physician.
I. STRAUSS, M.D.

First Externe,
M. THORNER, M.D.

Second Externe,
H. B. SCHWARZ, M.D.

Provisionals,
EDWARD I. MILLER, M.D.
MEYER M. STARK, M.D.

HOUSE STAFF.

(Continued.)

From January 1st to June 30th, 1900.

House Surgeon,
L. B. MEYER, M.D.

House Physician,
L. A. S. BODINE, M.D.

Senior Assistant Surgeon,
EUGENE H. EISING, M.D.

Senior Assistant Physician,
I. STRAUSS, M.D.

Junior Assistant Surgeon,
M. THORNER, M.D.

Junior Assistant Physician,
J. W. BECKER, M.D.

First Externe,
H. B. SCHWARZ, M.D.

First Externe.
EDWIN BEER, M.D.

Second Externe,
TRUMAN ABBE, M.D.

Second Externe,
EDWARD A. ARONSON, M.D.

Provisionals,
EDWARD I. MILLER, M.D.
MEYER M. STARK, M.D.

Provisionals,
CHAS. E. ROSENWASSER,
J. HOWARD STAUB, M.D.

From July 1st to December 31st, 1900.

House Surgeon,
EUGENE H. EISING, M.D.

House Physician,
I. STRAUSS, M.D.

Senior Assistant Surgeon,
M. THORNER, M.D.

Senior Assistant Physician,
J. W. BECKER, M.D.

Junior Assistant Surgeon,
EDWIN BEER, M.D.

Junior Assistant Physician,
H. B. SCHWARZ, M.D.

First Externe,
EDWARD A. ARONSON, M.D.

First Externe,
TRUMAN ABBE, M.D.

Second Externe,
MAJOR G. SEELIG, M.D.

Second Externe,
MILTON GERSHEL, M.D.

Provisionals,
ELI MOSCHCOWITZ, M.D.
R. T. FRANK, M.D.

Provisionals,
LEON BANDLER, M.D.
EUGENE P. BERNSTEIN, M.D.

I.

DEPARTMENT OF INTERNAL MEDICINE.

STATISTICS OF MEDICAL SERVICE DURING 1899 AND 1900.

GRAND TOTAL OF ALL CASES.

Treated	1,906
Cured	902
Improved	687
Unimproved	91
Died	226

	General Diseases.	Total.		Cured.		Improved.		Unimproved.		Died.	
		M	F	M	F	M	F	M	F	M	F
A.	Diphtheria	2	11	2	11						
	Erysipelas		1		1						
	Febricula		1		1						
	Influenza	25	20	25	20						
	Malaria	49	9	4	7		2				
	Measles		1		1						
	Parotitis, acute infectious		3		3						
	Scarlatina		1		1						
	Typhoid	108	44	96	41		1			12	2
B.	Arthritis deformans	2	5		1	2	4				
	" gonorrheal	21	5	12	3	9	2				
	" tubercular		1				1				
	Alcoholism	2	2			2	2				
	Carcinosis, general	1								1	
	Debility	2	2			2	2				
	Diabetes	7	2			4				3	2
	Goitre		3				3				
	Gout	4				4					
	Lumbago	3				3					
	Pyemia		1								1
	Rheumatism, acute articular	63	34	47	29	15	4	1	1		
	" subacute	34	20	27	18	7	2				
	" chronic acute	7	5		5	2	2	3			
	" muscular	14	3	12	3	2					
	Scorbutus	3	1	3							1
	Septicemia		1							1	
	Syphilis	5	4		1	5	2		1		
	Senility	6				5		1			
	Tenia solium		1		1						
	Total	358	190	228	147	62	27	5	2	17	6

Diseases of the Digestive Tract.	Total.		Cured.		Improved.		Unimproved.		Died.	
	M	F	M	F	M	F	M	F	M	F
Abdominal tumor	1	3	...	..	1	2	..	1	..	..
Appendicitis, acute catarrhal	1	1	1	1	..	..	..	..	..	..
" subacute catarrhal	...	3	...	3	..	..	..	..	..	..
" chronic	1	...	...	..	1	..	..	..	..	..
Cholecystitis	...	3	...	2	..	1	..	..	..	..
Cholelithiasis	10	11	5	5	5	4	..	1	..	1
Colitis, acute	7	1	7	1	..	..	..	..	..	..
" chronic	3	2	1	1	2	1	..	..	..	..
" membranous	...	1	..	1	..	..	..	..	..	..
" mucous	11	2	10	2	1	..	..	..	..	..
" necrotic	1	...	1	..	..	..	..	..	..	..
" ulcerative	5	...	4	..	..	..	..	..	1	..
Colon, carcinoma	1	1	..	..	..	..	..	..	1	1
Constipation	14	13	10	11	4	2	..	..	..	..
Dysentery, acute	8	...	7	..	..	..	1	..	..	..
" chronic	1	...	...	..	..	..	1	..	..	..
Emesis	1	2	...	1	1	1	..	..	..	..
" of pregnancy	...	3	...	2	..	1	..	..	..	..
Enteritis	2	...	2	..	..	..	..	..	..	..
" chronic	3	3	2	3	1	..	..	..	..	..
" tubercular	1	1	...	..	..	..	..	..	1	1
Enteralgia	2	...	1	..	1	..	..	..	..	..
Entero-colitis	2	2	1	2	..	..	..	..	1	..
" tubercular	2	...	...	..	1	..	..	..	1	..
Enteroptosis	...	1	...	..	..	1	..	..	..	..
Esophagus, carcinoma	4	1	...	..	2	..	1	..	1	1
" stricture, specific	1	...	...	..	1	..	..	..	..	..
" " spasmodic	...	1	...	1	..	..	..	..	..	..
Fecal impaction	1	2	1	2	..	..	..	..	..	..
Gastralgia	1	..	1	..	..	..	..	..	..	..
Gastritis, acute	3	1	3	1	..	..	..	..	..	..
" subacute	11	15	10	12	..	3	1	..	..	..
" chronic	26	9	3	2	22	7	1	..	..	..
" atrophic	2	...	...	..	2	..	..	..	..	..
Gastro-duodenitis	5	1	4	1	1	..	..	..	..	..
Gastro-enteritis, acute	2	4	2	3	..	1	..	..	..	..
" chronic	1	...	..	..	1	..	..	..	..	..
Hemorrhoids	2	...	2	..	..	..	..	..	..	..
Hepatitis, acute	1	...	1	..	..	..	..	..	..	..
Hyperchlorhydria	1	1	...	..	1	1	..	..	..	..
Intestinal auto-intoxication	12	2	12	2	..	..	..	..	..	..
Intestine, adeno-carcinoma	1	...	...	..	..	..	..	..	1	..
" sarcoma	1	...	...	..	..	..	..	..	1	..
Jaundice, catarrhal	6	...	4	..	2	..	..	..	..	..
" infectious	1	...	1	..	..	..	..	..	..	..
Leucomaine poisoning, chronic	1	..	...	..	1	..	..	..	..	..
Liver, carcinoma	7	1	...	..	1	..	2	..	4	1
" cirrhosis	2	2	...	..	1	..	..	..	1	2
" abscess	2	...	...	..	..	..	..	..	2	..
" tumor	2	1	...	..	1	..	..	1	1	..

	Total.		Cured.		Improved.		Unimproved.		Died.	
Diseases of the Digestive Tract— *Continued.*	M	F	M	F	M	F	M	F	M	F
Liver, hypertrophic cirrhosis	4				2				2	
" acute yellow atrophy		1								1
Pancreas, carcinoma	1						1			
Peritoneum, carcinoma		1						1		
" lymphosarcoma	1								1	
" and ileum, lymphosarcoma	1	1							1	1
Peritonitis, tubercular	2		1				1			
" post-operative	1				1					
Pharyngitis	1		1							
Pylorus, carcinoma	2				2					
Pyorrhea		1		1						
Rectum, carcinoma		2						1		1
Sigmoid, tumor of	2	2							2	2
" carcinoma		1								1
Stomach and liver, carcinoma		1								1
" carcinoma	9	9			2	2	3	4	4	3
" ulcer	2	7	2	4		2		1		
Tonsillitis, acute		4		4						
" follicular	6	6	6	6						
" suppurative	3	1	3	1						
Tonsillo-pharyngitis	1		1							
Tonsillitis, hypertrophic, leptothrix Ulceration of palate, specific	1				1					
Total	210	131	110	75	62	29	12	10	26	17
Diseases of the Circulatory System.										
Aneurism, arch of aorta	1				1					
" innominate artery	1						1			
Angina pectoris, pseudo	2				2					
" " true	1								1	
Endarteritis	1				1					
" specific	2				1				1	
" with ruptured aneurism	1								1	
Endocarditis, acute	1	4				2			1	2
" chronic	40	38			30	29			10	9
" ulcerative	4	1							4	1
" with nephritis	27	31			12	14		1	15	16
Myocarditis, chronic	8	11			5	9			3	2
Pericarditis	2	1	2							1
Phlebitis		3		2						1
Total	91	89	2	2	52	57	1	1	36	33
Diseases of Respiratory Tract.										
Abscess of lung	3	1		1					3	
Asthma	7	2	6	1		1	1			
Atelectasis	1				1					
Bronchitis, acute	10	9	10	9						
" chronic	6	2	2	2	4					

Diseases of Respiratory Tract—*Continued.*	Total.		Cured.		Improved.		Unimproved.		Died.	
	M	F	M	F	M	F	M	F	M	F
Emphysema	10	4	2	..	8	4	..	..	..	..
" with bronchitis	14	7	1	..	13	7	..	..	..	..
Hemothorax	1	..	..	..	..	..	..	..	1	..
Hydropneumothorax	1	..	..	..	1	..	..	..	..	..
Hiccough	1	..	1	..	..	..	..	..	..	..
Laryngitis, acute catarrhal	..	1	..	1	..	..	..	..	..	..
Lung, carcinoma of	4	..	..	..	..	..	1	..	3	..
" " " with empyema	1	..	..	..	..	..	..	..	1	..
Mediastinum, tumor of	2	1	..	..	..	..	..	2	1	..
Phthisis, acute	9	2	..	..	5	1	..	4	1	..
" chronic	33	14	..	..	29	10	..	4	4	..
" incipiens	25	4	..	..	25	4	..	..	..	..
Pharyngitis acute catarrhal	3	..	3	..	..	..	..	..	..	..
Pleurisy, chronic	3	..	..	..	2	..	1	..	..	..
" dry	4	1	3	1	1	..	..	..	..	..
" with effusion	24	10	23	9	1	1	..	..	..	..
" subdiaphragmatic	2	..	2	..	..	..	..	..	..	..
Pneumonia, acute lobar	66	47	55	39	..	..	..	11	8	..
" acute lobar, with pleurisy, chronic, effusion	1	2	1	2	..	..	..	..	..	..
" acute lobar, with nephritis	1	..	..	..	..	..	..	1	..	..
" acute lobar, with secondary pernicious anemia	..	1	..	..	..	..	..	..	1	..
" broncho	7	6	6	3	1	..	..	..	..	3
" fibroid	1	..	..	..	1	..	..	..	..	..
" resolvans	1	..	1	..	..	..	..	..	..	..
" with purpura hemorrhagica	1	..	..	..	..	..	..	..	1	..
" croupous	1	..	..	..	..	..	..	..	1	..
Pyopneumothorax	1	..	..	..	..	..	..	..	1	..
Rhinitis, hypertrophic	1	..	1	..	..	..	..	..	..	..
Tuberculosis pulmonalis	13	6	..	..	9	5	..	..	4	1
" incipiens	2	..	2	..	1	..	..	..	..	..
" miliary, tubercular meningitis	1	..	..	..	..	..	..	..	1	..
" pulmonary, with tuberculosis of genito-urinary tract	1	..	..	..	..	..	..	..	1	..
Total	263	120	119	68	102	33	3	22	32	4
Diseases of the Blood.										
Anemia, primary	2	12	1	5	1	7	..	..	..	..
" secondary	5	8	..	2	3	4	1	2	1	..
" pernicious	1	..	..	..	..	..	..	..	1	..
Chlorosis	..	4	..	4	..	..	..	..	1	..
Leukemia, myelo-splenic	..	1	..	..	..	..	..	..	..	1
" acute	1	..	..	..	..	..	..	..	1	..
" pseudo	1	..	..	..	1	..	..	..	..	..
Total	10	25	1	11	5	11	1	2	4	1

Diseases of the Nervous System.	Total.		Cured.		Improved.		Unimproved.		Died.		Transferred.
Cranial.	M	F	M	F	M	F	M	F	M	F	
Abscess		1								1	
Apoplexy	8	5		1	6	2			2	1	1
" subacute serous	1								1		
Cephalalgia	5	4	3	1	2	3					
Meningitis, cerebro-spinal											
" diplococcus	1	2		2					1		
" purulent		2								2	
" syphilitic	4		1		3				3		
" tubercular	3										
Syphilis, cerebro-spinal	6		1		4		1				
Tumor	4	2					1		3	2	
Spinal.											
Myelitis	2	1			2					1	
Pachymeningitis cervicalis		1				1					
Paralysis, progressive bulbar	1						1				
Sclerosis, amyotrophic lateral	2				1		1				
" multiple, with purulent meningitis	1								1		
Tabes dorsalis	1				1						
Tumor	2	1			2					1	
Peripheral.											
Enteralgia	1		1								
Gastric neurosis	1		1								
Lumbago	4		3		1						
Neuralgia	2				2						
Trigeminal neuralgia	3		2		1						
Neuritis, brachial	4	1	1	1	3						
" multiple, with pregnancy		1		1							
Ophthalmoplegia externa	1				1						
Sciatica	27	15	14	9	12	4	1	2			
General.											
Acromegalia and diabetes		1				1					
Astasia abasia	1		1								
Chorea		2		1		1					
Diabetes insipidus	1		1								
Dementia, postpartum		1						1			
" post-epileptic	1				1						
" specific	1						1				
Eclampsia		1		1							
Epilepsy	2	1		1	1		1				
Erythromelalgia	2				2						
Hemiplegia, syphilitic	2	1		1	2						
Hysteria	11	21	5	12	3	8	2	1			1
Imbecility	1						1				
Insanity, confusional		1				1					
" emotional	1				1						
Mania	1	2					1	2			
Mania, alcoholic	1						1				

Diseases of the Nervous System—*Continued.*	Total.		Cured.		Improved.		Unimproved		Died.	
General.	M	F	M	F	M	F	M	F	M	F
Melancholia	1	2	..	..	..	2	1	..	..	..
Neurasthenia	38	32	14	7	20	25	4	..	..	..
Neuritis, multiple	6	2	4	..	2	2	..	..	..	..
Paralysis agitans	..	1	..	..	..	1	..	..	..	..
Total	155	104	52	38	73	51	17	16	11	8
Poisons.										
Alcoholism	1	..	..	..	..	..	1	..	..	..
Creosote poisoning	..	1	..	..	..	..	..	1	..	..
Morphinism	2	..	1	..	1	..	..	..	..	..
Plumbism	3	..	1	..	2	..	..	..	..	..
Total	6	1	2	..	3	..	1	1	..	..
Surgical Diseases.										
Abortion, curettement	..	1	..	1	..	..	..	..	..	..
Abscess of elbow	1	..	..	..	1	..	..	..	..	..
" subphrenic	..	..	..	..	..	..	..	..	..	..
Adenitis, cervical	..	1	..	1	..	..	..	..	..	..
Arthritis, rheumatic, of elbow	..	1	..	..	..	1	..	..	..	..
Cystocele	..	1	..	..	..	1	..	..	..	..
Endometritis	..	1	..	1	..	..	..	..	..	..
" gonorrheal	..	2	..	2	..	..	..	..	..	..
Epiphysitis, specific, of elbow	1	..	..	..	1	..	..	..	..	..
Ethmoiditis, purulent	2	..	..	..	2	..	..	..	..	..
Fracture, transverse, of tibia	..	1	..	1	..	..	..	..	..	..
Intestinal obstruction	1	..	..	..	..	..	..	..	1	..
Kyphosis, dorsal	..	1	..	..	..	1	..	..	..	..
Lymphosarcoma	1	1	..	..	..	..	..	1	1	..
Mastoiditis, abscess of brain	1	..	..	..	..	..	..	..	1	..
Myositis, acute	1	..	..	..	1	..	..	..	..	..
Otitis media chronica	..	1	..	1	..	..	..	..	..	..
Parametritis	..	1	..	..	..	1	..	..	..	..
Periostitis, chronic	1	..	..	..	..	..	1	..	..	..
" specific, both tibiæ	..	2	..	..	..	2	..	..	..	..
" " femur	..	1	..	..	..	1	..	..	..	..
" " malar bone	..	1	..	..	..	1	..	..	..	..
Pes planus	2	1	..	..	2	1	..	..	..	..
Proctitis, chronic, after Kraske's operation	1	..	..	..	1	..	..	..	..	..
Sacro-iliac disease	..	1	..	..	..	1	..	..	..	..
Sarcoma of humerus	1	..	..	..	..	..	1	..	..	..
Salpingitis	..	1	..	1	..	..	..	..	..	..
Salpingo-oöphoritis	..	1	..	..	..	1	..	..	..	..
Spondylitis, lumbar	1	..	..	..	1	..	..	..	..	..
Synovitis, biceps tendon	1	..	..	..	1	..	..	..	..	..
" knee-joint	2	..	2	..	..	..	..	..	..	..
" rheumatic, of tendo Achillis	1	..	1	..	..	..	..	..	..	..
Thyroid, carcinoma	1	..	..	..	..	..	1	..	..	..
Thyroiditis, acute	..	1	..	1	..	..	..	..	..	..
Tuberculosis, spine	2	1	..	..	1	..	1	1	..	..

Surgical Diseases—*Continued.*	Total.		Cured.		Improved.		Unimproved.		Died.	
	M	F	M	F	M	F	M	F	M	F
Tuberculosis, knee	1	..	..	..	1	..	..	..	..	..
" hip	1	..	..	..	1	..	..	..	..	..
Urethral caruncle	..	1	..	1	..	..	..	..	..	..
Uterus, acute retroflexion of	..	1	..	1	..	..	..	..	..	..
Total	23	24	3	11	13	11	4	2	3	..
Cutaneous Diseases.										
Dermatitis, general chronic	..	1	..	..	..	1	..	..	..	..
Dermatitis	1	..	..	..	1	..	..	..	..	..
Eczema	5	4	5	..	4	..	..	..	..	..
Erythema nodosum	..	1	..	1	..	..	..	..	..	..
" scarlatiniform	..	1	..	1	..	..	..	..	..	..
Onychogryphosis	1	..	1	..	..	..	..	..	..	..
Peliosis rheumatica	1	1	1	1	..	..	..	..	..	..
Pemphigus foliaceous	..	2	..	..	..	..	..	..	..	2
Psoriasis	1	1	1	1	..	..	..	..	..	..
Purpura hemorrhagica	1	..	..	..	..	..	..	..	1	..
" rheumatica	1	2	1	1	..	1	..	..	..	..
Sarcoides pigmentosa	..	..	..	..	..	..	..	..	..	..
Scabies	1	..	1	..	..	..	..	..	..	..
Sycosis, eczematous	1	..	1	..	..	..	..	..	..	..
Tuberculosis and syphilis of nose	1	..	..	..	1	..	..	..	..	..
Totals	14	13	11	5	6	2	..	..	1	2
Genito-Urinary Diseases.										
Carcinoma of uterus, vagina, and rectum	..	1	..	..	..	..	..	..	..	1
Epididymo-orchitis	2	..	1	..	1	..	..	..	..	..
" tubercular	1	..	..	..	1	..	..	..	..	..
Gonorrhea, chronic	1	..	..	..	1	..	..	..	..	..
Nephroptosis	..	1	..	..	..	1	..	..	..	..
Nephritis, acute	8	..	3	..	4	..	..	..	1	..
" subacute	1	2	..	..	1	2	..	..	..	..
" chronic	61	25	2	3	42	20	2	..	15	2
" with uremia	4	2	..	..	3	2	..	..	1	..
" " diabetes	..	1	..	..	..	..	..	..	..	1
" " purpura hemorrhagica	..	1	..	..	..	..	..	..	..	1
" " myocarditis	..	1	..	..	..	..	..	..	..	1
Nephralgia	4	5	2	3	2	2	..	..	..	..
Prostatic hypertrophy	1	..	..	..	1	..	..	..	..	..
Pyelitis	..	3	..	1	..	2	..	..	..	..
" gonorrheal	1	..	1	..	..	..	..	..	..	..
Renal calculus	1	..	..	..	1	..	..	..	..	..
Retention	..	1	..	1	..	..	..	..	..	..
Uterus, prolapse of	..	1	..	..	..	1	..	..	..	..
" retroversion of	..	1	..	..	..	1	..	..	..	..
" retroflexion and lacerated cervix	..	1	..	..	..	..	..	1	..	..
Uremia	1	..	..	..	..	..	..	..	1	..
Total	86	46	9	8	57	31	2	1	18	6

II.

A CASE OF ACROMEGALY; DIABETES MELLITUS WITH EXCESSIVE POLYURIA; HYPERIDROSIS.

By J. Rudisch, M.D.,

ATTENDING PHYSICIAN.

Lena P., aged 25. Admitted November 13, 1900.

Family History.—Parents living and healthy. Has one living brother, who is in good health. Has two sisters, both healthy.

Previous History.—Has always been well. Menstruation began at 16 years and was perfectly regular until two years later, since which time she has menstruated but once or twice a year.

Present Illness.—For the past two years has noticed that her abdomen is increasing in size. Says that her hands and feet have been large ever since she can remember. Thinks the fulness in her neck is not as prominent as it used to be. Has no cough. Perspires freely. Has no headache. She sleeps poorly. Two years ago she began to drink large quantities of water and her urine was increased in amount. Her thirst continues and she voids large quantities of urine. Chief complaints are loss of menstrual function, some pain in the right side, thirst and sweating. Was admitted to the service of Dr. Mundé for pruritus vulvæ.

Physical Examination.—General condition good, well nourished. Tongue moist, flabby, and congested. It is slightly coated. Epidermis is coarse; hair is not. Lips are thick. Nose is large and heavy. Malar bones are prominent. Moderate bilateral thyroid enlargement. Ears are small. Small furuncle on right side of mouth. Arms are short and thick. Hands large and spade-shaped. Finger tips are blunt and stubby. In left axilla, furuncle and indurated area; another furuncle below this on arm.

Abdomen.—Large; walls lax. Skin about umbilicus is thickened and feels somewhat like that of myxedema. No ascites.

Liver.—Sixth rib to four fingers below free border. Free

edge is sharp and best felt in anterior axillary line. Surface is smooth. Left lobe extends to within three fingers of umbilicus. Longitudinal fissure plainly palpable.

Lungs.—Negative.

Heart.—Bulging of precordium. Right border is at midsternum, upper border at third rib. Left border is half an inch outside of nipple line. Apex beat in fifth space, inside nipple line; short blowing systolic murmur at apex, not transmitted. Pulsation in vessels of neck.

Feet are enlarged similarly to hands. No edema.

On admission, pulse, respiration, and temperature were normal and remained so throughout her stay here. Urine acid; specific gravity 1020; trace of albumin and sugar present.

November 20: General condition improving. Large quantities of urine are passed daily, containing on the average 3 per cent. of sugar. Thyroid extract, one grain, given t. i. d. Antidiabetic diet. Blood shows; erythrocytes, 1,500,000; leucocytes, 3,000; hemoglobin, 65 per cent.

November 23: Patient complains of excessive perspiration. Thyroid stopped and agaricin, one-thirtieth grain, given t. i. d., with strychnine, one-sixtieth grain, every four hours.

November 27: Passes on the average 470 ounces of urine, containing 3½ per cent. sugar and a trace of albumin. No acetone.

November 29: Agaricin having no effect on the perspiration, it was stopped and tinctura opii deodorata substituted. Abscess in axilla opened.

December 1: Examination showed that fundus of bladder reached one-half inch below level of umbilicus. Straight woven catheter, introduced before urination, passed in thirteen inches before fundus could be reached.

December 4: General condition remains good. Average daily excretion of urine remains the same. The percentage of sugar has at times been as high as 5 per cent. Acetone present. Opium stopped and pituitary extract, three grains, given t. i. d., and codeine, one-half grain, every four hours. General hyperidrosis continues.

December 7: Jacket of cotton applied to body for twenty-four hours and sweat collected. No sugar was found to be present.

December 12: Amount of urine remains the same. Percentage of sugar is about 3. Acetone present. Excessive perspiration still present.

December 15: Camphoric acid given for the sweating.

December 20: General condition remains good. No change in the urine.

December 25: Pituitary extract increased to five grains three times daily. Thus far it has had no effect upon the general condition or on the hyperidrosis.

December 30: Urine diminishing slightly in quantity.

January 3: General condition unchanged. Urine averages about 3 per cent. of sugar. Excessive perspiration persists.

January 5: Discharged at request.

This case is reported as adding one more to the recorded number of that rare and interesting condition known as acromegaly.

The patient also suffered from diabetes mellitus with polyuria, a complication which is not unusual in these cases. But the diabetes was accompanied by an intractable and persistent hyperidrosis of the entire skin, which condition, associated with mellituria and polyuria, is very rare.

Very few cases of hyperidrosis in diabetes are mentioned, and when it does occur it is usually localized and confined to one side of the face. It is of some interest in this connection to know that sugar did not occur in the perspiration.

II[r].

A CASE OF DIABETES INSIPIDUS CURED BY SUGGESTION.

By J. Rudisch, M.D.,

ATTENDING PHYSICIAN.

Isaac A., aged 45 years; stableman; born in Germany. Admitted November 24, 1900.

Admitted to the service of Dr. Fluhrer with following history:

About three months before this, patient had combined urethrotomy performed in the hospital for urethral stricture. Six weeks later was discharged with perineal fistula and incontinence and sent to the dispensary. Three weeks ago was readmitted to the hospital for treatment of fistula, being pretty nervous and much annoyed on account of the incontinence. At this time nothing more than a few drops of urine came from perineal opening and he was again referred to dispensary. Two weeks later, without any known cause, urine began to flow freely from perineal wound, and since then more has flowed through it than through the meatus urinarius. It flows from both places day and night, without patient's knowledge, so that he never has any desire to urinate voluntarily. Complains of occasional pain and tenderness in perineum.

November 24: Pulse 96; respiration 24; temperature 99° F. Urine contains a few pus and flat epithelial cells. Physical examination of patient was practically negative.

November 26: Perineal wound healed. No. 28 (French) sound passed. Residual urine three ounces. Prostate slightly enlarged. Has continual dribbling of urine from meatus.

December 2: Capacity of bladder is thirteen ounces. Residual urine nine ounces. Patient is passing large quantities of urine of low specific gravity.

December 3: Urine 423 ounces; specific gravity 1000. Microscopical examination negative. Pulse, respiration, and temperature normal.

December 4: Urine 377 ounces.
December 5: Urine 413 ounces.
" 6: " 455 "
" 7: " 578 "
" 8: " 661 "
" 9: " 654 "

Patient was put to bed to insure more careful watching and measuring of urine.

December 10: Urine 415 ounces.

December 11: Tincture belladonna, four minims t. i. d., and tincture nux vomica, five minims a. c., were given. Urine 478 ounces.

December 12: Urine 584 ounces.
" 13: " 635 " Weight 158 pounds.
" 14: " 732 "
" 15: " 696 "
" 16: " 767 "
" 17: " 818 " Had fluid extract ergot, one drachm t. i. d., given.

December 18: Tincture nux vomica was stopped. Tinctura opii deodorata, 5 minims every six hours, given.

December 18: Urine 871 ounces.
" 19: " 893 " Weight 156½ pounds.

Patient was carefully watched for evidence of fraud. None discovered; says he drinks very little water.

December 20: Urine 857 ounces.
" 21: " 886 " Had codeine, one-fourth grain every four hours, given, and fluids were restricted.

December 22: Urine 927 ounces.

December 23: Examination of eyes by Dr Gruening, because patient says his sight is failing, and it is thought that he might have a brain lesion.

By Dr. Gruening: Both discs normal. Some exudate (white spot) in fundus of right eye, evidently choroidal.

Patient allowed to have all the fluids he desires. Urine 770 ounces.

December 24: Urine 819 ounces.
" 25: " 1010 "
" 26: " 909 "
" 27: " 828 "
" 28: " 702 " Patient put to bed, all medication stopped.
December 29: Urine 477 ounces. In bed all day.
" 30: " 434 "

Transferred to my service Jan. 5, 1900.

Family History.—Father died at age of 75 years; mother at 80 years. Has five brothers living and healthy. Two sisters—one had either a hysterectomy or ovariotomy performed two years ago; the other has always been well. Both have children. All his relatives are healthy. No neurotic history. His father, and his uncle on father's side, all had hernias. Denies syphilis and gonorrhea. Has two children living. His wife had twins three times and died in confinement. She never aborted. He is a butcher by trade. During his work he drank about one pint of beer a day, before breakfast and before retiring at night. Since he was 14 years old he has taken whiskey. Never had an attack of this kind before. Did not have to urinate during the night. No history of fright or shock. Never nervous. The man is one of that class of neurotics with intense sexual desire, which he has always freely gratified.

Physical Examination.—January 6, 1900. General condition good. Nutrition good. Capillaries of face dilated. Arcus senilis present. Retraction above and below clavicle.

Lungs.—High-pitched note at right apex, otherwise negative. *Post.*—Few fine râles at right base, otherwise negative.

Heart.—Borders normal. Slight pulsation in vessels of neck and episternal notch. Sounds good, regular, no murmurs. Radial arteries tortuous and somewhat sclerotic; pulse regular.

Liver.—Fifth space; free border; not palpable.

Spleen.—Negative.

Abdomen.—Negative. Glands of groin slightly enlarged. Few glands in neck. Small veins of leg and back dilated.

Anterior surface of tibia rough. No edema of legs.

Reflexes.—Patellar reflex active. No clonus at ankle. Cremasteric and abdominal reflexes present and active. Pupils react to accommodation and light. No Romberg symptom.

Rectal Examination.—Small, soft mass in region of prostate, to the left side, size of small almond; not movable; tender.

In perineum, scar of previous operation.

Patient is positive in his denial of frequent micturition previous to former operation.

January 5: Passed 469 ounces; weight 157 pounds.

January 6: Passed 489 ounces. Tinctura cinchonæ was stopped and antipyrin, ten grains q. i. d., given as placebo.

January 7: Patient was put in separate room and watched by members of house staff constantly. Started at 10:25 A.M.; weight was not taken on starting, but was taken at 12:30 P.M., and was $157\frac{5}{8}$ pounds. During the twenty-six hours of confinement the patient took $120\frac{1}{2}$ ounces of food and passed 97 ounces of urine. At the end of this period his weight was $152\frac{5}{8}$ pounds; a loss of 5 pounds. The urine was examined

and found to be of a specific gravity of 1012, whereas previously it had been about 1002. The amount of urea was 1 per cent.

January 8: Antipyrin was stopped and a little strychnine given. From now on patient began to void less urine, ceased wetting the bed, and the dribbling from meatus also stopped.

January 9: Passed 116 ounces urine.
" 10: " 43 " "
" 11: " 35 " "
" 12: " 80 " "
" 13: " 60 " "
" 14: " 66 " "
" 15: " 50 " "

January 16: During the past week the patient has been carefully watched by the nurses, and it has been suggested to him every day that he is improving, and that the amount of urine he will pass on the next day would be less than heretofore. The effect of this suggestion has been shown by the small quantity of urine passed yesterday, and also by the fact that there is scarcely any incontinence. The man's general condition is improved and he looks brighter and more cheerful. Discharged to-day cured.

On January 26 patient was readmitted to surgical ward with a history of having had violent pains in right iliac region, accompanied, as he said, by low fever and profuse sweating. There was no vomiting and his bowels moved freely. Examination showed slight tenderness below McBurney's point. Pulse 100; respiration 26; temperature 99°. He was kept in the hospital one day and his urine measured. He voided 32 ounces. Then he was discharged.

This case is interesting as having been a case of diabetes insipidus of a pronounced character. The amount of urine voided in one day, 1010 fluid ounces, is close to the largest quantity reported in these cases. The man was of a distinctly neurotic type, which was especially evidenced by his abnormal sexual craving and his general demeanor.

The perineal fistula left after urethrotomy, and because of which the man suffered with incontinence, might, through reflex irritation, have been the exciting cause of his diabetes insipidus.

The cure of the disorder speaks pronouncedly for a neurotic basis. It was essentially a cure by suggestion. He was a willing subject, offering no objection to solitary confinement

and to a restriction in both the solid and fluid constituents of his diet. In fact, he was eager and anxious to undergo any treatment which gave promise of relief.

His perineal wound being healed, and that source of irritation removed, the attempt to cure by mental suggestion was begun. He was confined in a private room and a member of the house staff stayed with him day and night for twenty-six hours. Fluids were stringently restricted, with the result that the amount of urine passed was considerably diminished. This fact was called to the patient's attention, and at the same time it was strongly suggested to him that, since he no longer had a fistula, there remained no cause for his passing so much urine, provided he was willing to restrict the amount he drank. He was then carefully observed, considerable personal attention paid to him by both the staff and nurses, and encouraged in the idea that he was improving, with the result that in a few days he began to pass the normal quantity of urine and was discharged cured. Ten days later when he returned to the hospital he was still passing a normal quantity of urine (32 ounces).

IV.

A CASE OF TYPHOID FEVER, COMPLICATED BY A BRONCHO-PNEUMONIA, SIMULATING TYPHUS FEVER.

By J. Rudisch, M.D.,
ATTENDING PHYSICIAN.

Max R., aged 27 years; born in Russia; tailor. Admitted January 16, 1900.

Family History.—Negative.

Present Illness.—Was fairly well until nine days ago, when he suffered from general malaise, chilly sensations, and a cough with mucous expectoration. No distinct chill, no active delirium, but complained of some headache. The family physician reports that on the seventh day of illness the temperature was 104° F., and on the next day it ranged from 104.5° to 105.6°. The eighth day (day before admittance) rash appeared on abdomen. Bowels constipated. Urination normal as regards quantity and frequency.

Physical Examination.—General condition poor. Well nourished. Large frame. Tongue dry and coated in the centre; tip and edges free and moist. Face somewhat dusky; conjunctivitis. Pupils react to light and accommodation. One or two small conjunctival hemorrhages on eyeball. Expression stupid. Sensorium confused. Entire surface of body, arms and forearms, and thighs as far as knees, covered with a diffuse maculo-papular and petechial eruption.

Lungs.—Many sibilant and sonorous râles over entire chest anteriorly, with harsh respiratory murmur. *Post.*—Same as in front, with addition of increased breathing and many subcrepitant râles at the bases.

Heart.—Borders normal. Sounds labored, rather feeble. Action regular. No murmurs. Pulse soft, large, and regular.

Spleen.—Seventh space to free border. Palpable.

Liver.—Not enlarged.

Abdomen.—Distended and tympanitic. Slightly tender. On admission, pulse 112, respiration 40, temperature 102.4°.

Whiskey and strychnine given. Urine was acid; specific gravity 1020; no albumin; no sugar. Microscopically it contained a few finely granular casts and many uric acid crystals.

January 17: Condition unchanged. Pulse ranges from 100 to 116. Respiration 28-36. Temperature 101.4° (morning) to 103.6° (night). Widal test was negative.

January 18: Cough increased. Mental condition remains stupid and somnolent. A few petechiæ have appeared on the legs and feet. Pulse 94-102. Respiration 28-30. Temperature 100° to 101.6°. Widal test negative.

January 19: Temperature has reached the normal. General condition improved. Mental condition the same. Cough is less and fewer râles heard in lungs. *Widal reaction positive.* Catheterization necessary.

January 20: Urine examination: Acid, specific gravity 1020, trace of albumin, few hyaline casts and red blood cells. No Ehrlich's diazo reaction.

January 21: Mental condition clearing. Eruption is gradually fading.

January 23: Pulse, respiration, and temperature have been normal for four days. The eruption has almost entirely disappeared. General condition much improved Heart sounds good. Harsh, sonorous breathing heard anteriorly. At left base posteriorly, voice, breathing, and fremitus are distinguished, and, to a less degree, same is true of right base. Mental condition good. No headache. The patellar reflexes are exaggerated and a slight ankle clonus is present.

January 25: Positive Widal reaction again obtained.

January 26: Spleen no longer enlarged to percussion and not palpable. Lungs have cleared up entirely.

January 29: Eruption has entirely disappeared.

January 31: Out of bed.

February 6: Discharged cured.

When this patient was admitted to the hospital, the presence of the petechial eruption, the dusky hue of his face, the conjunctivitis, his delirium and high fever, all pointed so strongly to the diagnosis of typhus fever that he was at once sent to the isolation ward, where I first saw him. Yet, despite the clinical symptoms enumerated, the general impression which the case made upon me was not that of typhus, but rather of typhoid fever; and I was strengthened in this view by the presence of a palpable spleen, by the absence of photophobia and tinnitus aurium, by the fact that his delirium was not of a very active nature and marked headache, and also because his eruption had

not appeared until the eighth day of his illness, which is somewhat unusual for the typhus exanthem. Furthermore, at that time there were no cases of typhus in the city.

The patient was accordingly ordered to the general ward, and four days after his admittance my suspicion as to the presence of typhoid fever was confirmed by the occurrence of the Widal reaction[1] in his blood. It is to be considered a fortunate circumstance that the Widal was positive only after two negative results. This showed absolutely that the positive reaction was not due to any previous attack of typhoid fever.

On the third day after admission, and on the twelfth day of his acute illness, his temperature began to fall and reached the normal early the next morning—a fall by crisis. At the same time there was a sudden and marked improvement in his general condition. His pulse became stronger, the breathing less rapid and difficult, and the signs of bronchitis in the lung began to moderate at once. So striking was the change in the patient's condition, coming on as it did by crisis, that I ventured the opinion that his typhoid fever had about run its course, and that what he was really suffering from was most probably a superimposed broncho-pneumonia. This opinion was based not only upon the crisis, the change in the lungs, and the rapid general improvement, but also upon the presence of the peculiar maculo-papular hemorrhagic eruption upon the body, arms, and thighs. Such an eruption is a very unusual occurrence in typhoid fever; hemorrhagic roseolas appearing only in the extremely rare hemorrhagic typhoids described by Murchison and Liebermeister.

On the other hand, the wards of the hospital, during the month of January, contained several cases of pneumonia, most likely due to influenza, which had petechial eruptions similar to that of the patient, so that I ascribed his to the same cause.

The summary of the case, therefore, is that it was one of a mild type of typhoid, probably ambulatory in the greater part of its course, and upon this was added broncho-pneumonia with delirium and petechial eruption, producing a picture resembling typhus.

[1] The reaction was made by Dr. E. Libman Assistant Pathologist, and obtained with a dilution of 1:50.

V.

STATISTICS OF CASES OF DIABETES IN THE MOUNT SINAI HOSPITAL DURING THE YEARS 1890-1900.

By Julius Rudisch, M.D.,
ATTENDING PHYSICIAN,
AND
Edward A. Aronson, M.D.,
INTERNE.

Entire number of Hospital cases.	Per cent of cases.	Number of cases.	Sect.		Nativity.					Age								Sex.	
			Hebrews.	Gentiles.	Germany	Russia.	Austria.	United States.	England	10-20	20-30.	30-40	40-50.	50-60.	60-70.	70-80.	Unknown.	Males.	Females
29,166	.0021	62	52	10	27	19	11	14	1	3	11	10	5	18	11	3	2	43	19

Occupation.

Housewives	9	Butchers	3
Cigar-maker	1	Engineer	1
Salesmen	3	Tailors	4
Cutter	1	Painter	1
Cap-maker	1	Clerks	2
Peddlers	4	Binder	1
Rabbis	2	Laborer	1
Cook	1	Porter	1
Merchant	1	Brokers	2
Photographer	1	Waiters	2
Policeman	1	Cleaner	1
No occupations	18		

For purposes of comparison, we looked over the case books of the Roosevelt, New York, German, and Lebanon Hospitals for the same period of time, and the following table is an epitome of their reports:

Hospital.	Entire number of Hospital cases.	Per cent of cases.	Number of diabetics.	Sect.		Nativity.										Age.								Sex.	
				Hebrews.	Gentiles.	Germany.	Russia.	Austria.	United States.	England.	Canada.	Ireland	Scotland.	France.	Italy.	Sweden.	10-20.	20-30.	30-40.	40-50.	50-60.	60-70.	70-80.	Unknown	Males.	Females.
Roosevelt ..	28 402	.0014	36	2	34	4	1	..	16	3	..	6	2	..	..	4	1	6	6	6	13	1	1	25	11
New York..	50,429	.0005	28	3	25	3	1	1	10	1	1	8	..	2	1	..	1	2	7	6	6	3	3	..	20	8
Jerman	24,811	.0023	59	19	40	50	1	1	2	2	1	1	1	..	..	..	1	4	8	7	17	19	2	1	45	14
Lebanon ...	3,953	.0027	11	10	1	..	2	7	..	1	..	1	..	..	..	..	1	2	..	2	1	2	1	2	4	7

The greatest difficulty in compiling these figures lay in the fact that in many of these hospitals the religion of the patients is not mentioned. It required a great deal of circumstantial evidence, such as the name, place of birth, recollections of the hospital attendants, etc., to determine the religious belief of the diabetics.

Despite this fact, we are reasonably certain, from the care and circumspection exercised in our inquiries, that our statistics are fairly accurate as regards this point. We were also able to eliminate patients who were inmates of more than one hospital during this period.

The whole number of patients in all the above-mentioned hospitals treated during these ten years amounted to 136,771, of which there were 196 cases of diabetes, making a ratio of 1 to 691.

It was impossible to determine what proportion of the total number of patients were Hebrews, for the simple reason that no mention of creed is made in the records of any of the hospitals. A theoretical estimate as to this proportion can be made upon the basis of population. The United Hebrew Charities of New York assume the approximate percentage of Jews in New York (Borough of Manhattan) to be fifteen per cent. of the entire population.

If now we assume that, upon the basis of population, fifteen per cent. of the total number of patients were Jews, we find that 29,500 were treated. Bearing in mind that the Hebrew gives a great deal of attention to his health and readily seeks medical attention and hospital care upon the first sign of any physical

ailment, we may feel satisfied that this number is not only not large, but probably an underestimate.

The whole number of diabetics was 109, and of these 86 were Hebrews, a matter of 43 per cent. If now we assume 20,500 as the total number of Jewish patients, we find that diabetes is nearly three times as prevalent among Hebrews as among other creeds and races.

That in the Jew there is an increased tendency to diabetes, due both to abuse in nutrition and to nervous pressure, is a fact abundantly demonstrated both in private practice and at the different watering places, especially Carlsbad. On the other hand, the great consumption of sweets and pastries by the wealthier classes in Italy has been observed by Cantani to be coincident with an increasing number of diabetics. A corresponding increase in diabetes has been found, in Germany, to have accompanied the increase of nervous tension due to the enormous growth of the commercial and industrial activities of the people.

Of the patients admitted into the Mount Sinai Hospital, the number of natives of Russia is three times as large as that of the natives of Germany. The striking feature, however, is that, of the diabetic patients, those that are natives of Germany outnumber those of Russian nativity in the proportion of six to one. These facts tend to confirm our opinion *that diabetes is not altogether a disease of the race, but rather of the class*, because in this hospital the Russian patients belong to the poorer laboring classes and are poorly nourished, whereas the majority of the Germans were represented by the higher class of workmen and persons employed in both mercantile and professional pursuits.

In this connection the statistics of the Massachusetts General Hospital, compiled by Fitz, are highly interesting:

Years.	Cases.	Diabetics.	Per cent
1824–1840	5,328	7	.13
1840–1855	6,136	16	.26
1855–1870	8,660	24	.27
1870–1885	11,690	39	.33
1885–1898	16,085	86	.53

It is both interesting and important to note that in the years 1840-1855, at a time when there were but few Germans and a very small number of Jews in Boston, the percentage of cases of diabetes exceeds that of the Mount Sinai Hospital for the years 1890-1900.

These statistics of Fitz's show, as other statistics do, the greatly increasing ratio of the disease from 0.13 to 0.53 per cent. Making another comparison, we are able to observe that the percentage of cases for the last period, viz., 1885-1898, is considerably more than double that of our hospital for the past ten years.

In closing, we wish to extend our thanks to the different authorities of the above-mentioned hospitals for the courtesy of allowing us to examine their records.

VI.

ON THE RELATIONSHIP OF FISTULA IN ANO TO PULMONARY TUBERCULOSIS.

By Alfred Meyer, M.D.,
ATTENDING PHYSICIAN.

Many authors do not specifically mention pulmonary tuberculosis as standing in a causative relation to fistula in ano, or do so indirectly by mentioning cachectic conditions as predisposing thereto.[1] Still Allingham[2] says that "16 per cent. of the patients with anal fistulæ have well-marked phthisis, either active or latent." Kelsey says: "When not due to a deposit of tubercle, the reason is probably in great measure a mechanical one, depending upon a loss of fat in the ischio-rectal fossæ and a resulting loss of support to the hemorrhoidal veins. From this there results a venous congestion and final dilatation or rupture of the vessels which, with cough and concussion, lead eventually to abscess." Gant says: "Probably from 4 to 6 per cent. of all phthisis patients have fistula; while a much larger percentage of those afflicted with fistula have phthisis, namely, from 10 to 15 per cent." Esmarch[3] expresses the opinion that abscesses which give rise to incomplete internal fistulæ are usually due to tubercular ulcers of the rectum. On the other hand, Percy Kidd[4] says: "It is by no means certain that ischio-rectal abscess is always or indeed generally of tuberculous origin." The cases heretofore gathered to show the relationship between these two diseases are obtained mainly from the experience of surgeons; they do not present a perfectly reliable picture of their numerical relationship, because they offer the analysis of cases from the surgical point of view only—that is, they show rather how many cases of fistula in ano have

[1] Erichsen, vol. ii., p 635.
[2] Ashhurst, Internat. Encycl. Surg.
[3] Deutsche Chirurgie, Lief. 48.
[4] Allbutt, art. "Phthisis Pulm."

phthisis, but not how many cases of phthisis have fistula in ano. So far as I know, no extensive statistics from this medical point of view have been gathered, the largest number being those of Walsham, quoted by Goodsall and Miles,[1] 891 cases of pulmonary tuberculosis, with 7 cases of fistula in ano, 133 postmortem examinations of cases of pulmonary tuberculosis with one fistula; and of Hartmann (quoted by Cornet), 626 cases of phthisis, of whom 31 had fistula in ano, equal to 4.9 per cent.

In a recent review of the French literature on the subject, Barié[2] cites all the older authors, including Louis, Laënnec, and Andral, as opposed to the view of their frequent relationship; but Barié himself maintains that the modern view favors the belief in a causal relationship. He cites three cases from his own experience in which the fistula preceded the development of pulmonary phthisis by a period of from 18 months to 4 years.

The records of the medical service at Mount Sinai Hospital for the past ten years show 460 cases of phthisis, 4 of whom had fistula in ano, or 0.87 per cent. On the surgical service, on the contrary, out of 139 cases of fistula in ano, 13 were reported with more or less definite physical signs of pulmonary tuberculosis, or 9.3 per cent.

For comparison I should like to append the following cases which I have gathered from other institutions:

Reporter.	Institution.	No. of Phthisis.	Cases of Fistula.
Cauldwell	St. Joseph's Home	3,000	30
Fraenkel	Montefiore Home	69	2
Author	Bedford Sanitarium	30	0
Trudeau	Saranac Lake	100	3
Dunham	Mass. Hosp. for Cons.	550	15
		3,749	[3]50

In my judgment these figures illustrate strikingly the cause of the differences of opinion heretofore prevalent, a difference due entirely to the source of the experience, whether medical or surgical.

[1] Dis. of Anus and Rectum.

[2] Journal des Practic., Jan. 12, 1901.

[3] Equals 1.3 per cent.

No studies have been made, so far as I know, regarding the prevalence of fistula in ano in cachexia from other causes, for instance, from carcinoma. Such comparative studies would be of service in showing the relative importance of a particular infection and of a cachexia *per se*.

In reading the description of fistulæ in ano in tubercular subjects and the statement so often made of the ease with which they are recognized, I have sometimes thought that the surgeons were describing fistulæ mainly in *advanced* tubercular cases, and that the supposed peculiarities were due rather to the advanced stage of the tuberculosis than to the fact that the fistula was a tuberculous one. So for instance: The patulous anus, the sinking in of the ischio-rectal fossæ from the absorption of fat. A more important practical point to my mind is the inquiry: Are there distinctive features in these fistulæ when they occur *early* in the history of pulmonary tuberculosis, and in people of good or even excessive weight, with scarcely any cough or expectoration, no fever, no night sweats, no hemoptyses, and perhaps only a slight deterioration of the general health? When may we and when may we not look upon such fistulæ as presumptive evidence of a predisposition to, or of an already existing tubercular infection? The characteristics advanced by the surgeons would not avail us in this latter type.

The possible causal connection of the tubercle bacillus with ischio-rectal abscess and fistula in ano had been established by the discovery of this organism in the pus discharged therefrom.[1] And upon theoretical grounds this was to be expected, for bacilli must be swallowed by the million in the sputum of these patients, and, as is also well known, they retain their vitality and their power to infect the intestinal mucous membrane in spite of the influence of the gastric and intestinal juices upon them. But no one, so far as I know, has studied how frequently tubercle bacilli are to be found just within the anus in cases of pulmonary tuberculosis, independent of the presence or absence of fistulæ, and it occurred to me that an investigation of this kind might throw some light upon their relation to fistula, and in turn the relation of fistula to pulmonary

[1] Lachman, Deutsch. med. Woch., 1884; Smith, Lancet, 1883, vol. i., p. 1108.

tuberculosis. For if the tuberculosis of the mesentery glands could be caused without any visible lesion of the intestinal mucous membrane, the tubercle bacilli being introduced by merely mechanical causes or by the aid of wandering cells, how much easier would such infection be in the rectum, where the feces were hard, where they were apt to become impacted, and where, in consequence, slight abrasions of the surface were so much more likely to occur? I had not expected, however, to find bacilli *resembling* tubercle bacilli in so large a proportion of cases as are shown in the following series; the more so because the patients were trained not to swallow their sputum and maintained that they did not do so.

The slides were prepared by introducing a large loop of coarse sterilized platinum wire about one inch within the sphincter, rotating it a few times so as to bring it thoroughly in contact with the mucous membrane, and then smearing the material obtained on the slides and fixing and staining according to Ziehl-Neelsen.

The results of these examinations are shown in the following tables:

MOUNT SINAI HOSPITAL

No.	Name.	Sex.	Phthisis.	Stage.	Swallows sputum.	Tubercle bacilli in sputum	Bacilli resembling tubercle bacilli in rectum.
1	A. G	M	Florida ...	Second.	Sometimes .	(?)	Yes.
2	M. G.	"	Phthisis, sin	Third ..	No	Yes	"
3	M. T.	"	Bilateral .	Second	"	"	No
4	L. K.	"	Suspect ..	First (?).	....	No	"
5	N. H	"	Yes	Second	No	Yes	Ischio-rectal pus. No.
6	J. S	"	"	"	"	"	Yes.
7	F A	F	"	Third ..	"	" ...	"

CHILDREN WITH EMPYEMA.

No.	Name.	Sex.	Bacilli resembling tubercle bacilli in rectum.
8	C. F	Female	Yes.
9	L. F.....	"	"
10	S S.	"	"

7 out of 10 cases positive = 70%.

In addition to the above cases examined at Mount Sinai Hospital, I have also examined the following fourteen patients at the Bedford Sanitarium of the Montefiore Home, all cases of phthisis in males.

No.	Name.	Swallows sputum.	Bacilli resembling tubercle bacilli in rectum	No.	Name.	Swallows sputum.	Bacilli resembling tubercle bacilli in rectum
1	Feldman	No	Yes	8	Landman	No	Yes
2	M. Beck	"	No.	9	S. Peck	"	
3	Lazarus	"	"	10	Kalinsky	"	"
4	Silver	"	"	11	Schub	"	"
5	Bromberg	"	"	12	Silverman	"	No.
6	Leitner	Formerly	Yes.	13	Bleicher	"	Yes.
7	Goldberg	At times	No	14	Harris	"	No.

7 out of 14 cases = 50%.

The method of staining employed and the large number of positive results having left me in doubt as to whether I was dealing with the tubercle bacillus or the smegma bacillus, I prepared a second series of specimens from the rectums of three cases already examined, in all of which the results had been positive. In place of staining them according to Ziehl-Neelsen, carbol-fuchsin was used as before, but they were decolorized in nitric acid, 1 to 6, and then allowed to remain in absolute alcohol for 6 hours. As a result, the bacilli were all decolorized—in other words, they were not tubercle bacilli, and the inference is justifiable that some of the bacilli previously found were smegma bacilli. Smears from the rectums of two other patients suffering with non-tubercular disease, one a case of acute nephritis and the other one of gastritis, proved negative with the long alcohol decolorization method. This greater sensitiveness of the smegma bacilli to absolute alcohol has been known for some years, but Sondern has accentuated the need of *prolonged* decolorization in absolute alcohol—from 5 to 8 hours. In his article upon "Genito-urinary Tuberculosis" in the Jacobi "Festschrift," he has very carefully considered the differential diagnosis of the smegma and tubercle bacilli, and also cautions against over-heating while fixing the specimen on the slide, and while staining with carbol-fuchsin.

According to Muir and Ritchie, the smegma bacillus occurs "in the smegma preputiale and in the region of the external genitals." Nothing is said about its occurring in the rectum. Even Flügge[1] says that the differential diagnosis of tubercle and smegma bacilli only need be considered when secretion from the genito-urinary organs is to be examined.

According to Cornet, it has been found by Gottstein and Bitter in cerumen, and by Laabs at different places on the surface of the skin, and at all the natural orifices of the body, and even in the coating of the tongue and teeth. This wide distribution of the smegma bacillus has been known for many years, as it came before the profession prominently in the years 1885 and 1886, in connection with the discussion on the Lustgarten bacillus.

The statements of some authors on the subject are very incomplete, however, and the danger of confusion appears to have been lost sight of, except in connection with genito-urinary tuberculosis. I can only recall one instance in which this question arose in connection with sputum examination, and that was a case reported by Pappenheim in the *Berliner klin. Woch.*, Number 37, 1898. The case had been diagnosticated as one of tuberculosis of the lung and intestine, on account of the discovery of supposed tubercle bacilli in large numbers in the sputum. The postmortem showed that these were smegma bacilli in purulent broncho-pneumonic foci, primarily due to staphylococcus infection and associated with bronchiectases, but there was no tuberculosis; and this conclusion was confirmed by a further study of the bacilli showing that they could be decolorized by absolute alcohol, also by the failure to obtain growth of the bacillus on various culture media, and the proof of its non-pathogenic character by inoculation of animals.

In view of these experiences there is even a certain amount of doubt thrown upon the earlier reports of the presence of tubercle bacilli in the discharge of rectal fistulæ and in the pus of ischio-rectal abscesses, and it is evident that not enough stress has been laid upon the need for the same caution in the diagnosis of a tubercular affection about and within the rectum

[1] Mikro-organismen, 3d edition, page 506.

as we are accustomed to exercise when the question of a genito-urinary tuberculosis arises.

The difficulty of differentiation in the case of rectal smears is enhanced by the fact that there are other morphological elements in the rectum which do not decolorize readily—epithelial cells and detritus that have, perhaps, become impregnated with fat, from long contact with the feces in which fat and the fatty acids are normally present. However, whatever the explanation, there can be no doubt of the fact that rectal smears decolorize much less readily than sputum, for instance, and that almost every slide has to be exposed to the nitric acid repeatedly, with alternate washings in water, before the characteristic pale pink appears, indicative of the proper decolorization. But even in spite of this method and subsequent decolorization for from six to eight hours in absolute alcohol, some specimens will still show the detritus stained with fuchsin.

In a third series of twenty-three cases of pulmonary tuberculosis at the Bedford Sanitarium, in whom rectal smears were examined, there were two cases that still had bacilli resembling partially decolorized tubercle bacilli after prolonged (six to nine hours) exposure to absolute alcohol. It is therefore uncertain whether these were smegma bacilli with increased resistance to decolorization by absolute alcohol, or tubercle bacilli with diminished resistance to the same reagent. Under such circumstances it would appear as though nothing but the animal experiment could give absolutely conclusive evidence.

RÉSUMÉ.

1. At Mount Sinai Hospital medical service, 0.87 per cent. of 460 cases of pulmonary tuberculosis had fistula in ano.

2. At Mount Sinai Hospital surgical service, 9.3 per cent, of 139 cases of fistula in ano had pulmonary tuberculosis.

3. Among 3,749 cases of pulmonary tuberculosis gathered elsewhere by author, 1.3 per cent. had fistula in ano.

4. Many smears taken from the rectums of patients both with and without pulmonary tuberculosis, but without fistula, show a bacillus which resists the decolorizing influence of mineral acid, but not prolonged immersion in absolute alcohol.

5. This bacillus is probably the smegma bacillus.

6. Some of the former diagnoses of tubercular fistulæ in ano, based upon the presence of the supposed tubercle bacillus, are unreliable because the latter may have been the smegma bacillus.

7. A bacteriological diagnosis of rectal tuberculosis should be made with the same precautions as that of a genito-urinary tuberculosis.

8. When a rectal smear, after prolonged immersion in absolute alcohol, shows bacilli partially decolorized, only the animal experiment can be relied upon for conclusive evidence of their nature.

VII.

TYPHOID FEVER AND PHARYNGEAL DIPHTHERIA.

By Morris Manges, M.D.,
ATTENDING PHYSICIAN.

The more or less markedly stupid state of patients attacked with typhoid fever, associated with the fact that physicians as a rule pay little attention to the condition of the mouth beyond inspection of the tongue, may be the explanation why so little has recently been written about the changes in the pharynx in this disease. It is only when difficulty in swallowing, hoarseness, or dyspnea develops that a search for the causes of these symptoms reveals conditions which may easily escape notice both during life and at postmortem examinations. This will also explain why there is such a wide divergence in the various works on typhoid fever as to the relative frequency of pharyngeal complications. That they are by no means uncommon becomes at once apparent after a study of the literature of typhoid fever, especially of the older writings. Indeed, it is to the older writers that we are indebted for the terms "pharyngo- and laryngo-typhoid fever." Huxham, Louis, Chomel, Bouillaud, Murchison, and Griesinger had recognized and carefully described the initial erythematous angina and the various manifestations of diphtheria at the onset and during the course of the disease, and they had also studied and classified the different forms of ulceration which may occur in the larynx, pharynx, and esophagus.

As most of these cases occurred "in prebacterial times," the correctness of the diagnosis of diphtheria has been questioned by numerous writers; indeed, so experienced a clinician as Curschmann expresses his views very positively in his classical treatise on typhoid fever:[1] "Diphtheritis and typhoid fever have

[1] Nothnagel's Encycl., 1898. Bd. iii., p. 307.

been regarded as coexistent especially by the older writers, and chiefly during severe epidemics. Undoubtedly in these cases we are dealing with diphtheritis in the older anatomical sense. So far as I know, no thorough modern bacteriological investigations have yet been made. I myself have never seen typhoid fever complicated with diphtheria according to the modern etiological view with the demonstration of the Klebs-Loeffler bacilli."

This view is not correct. In 1893 F. H. Williams, of Boston, reported a case in which diphtheria and typhoid fever occurred simultaneously.[1]

"L. J., a girl 17 years old, complained of sore throat five days before admission, and two days later a membrane was seen in the throat, in which Dr. Councilman found the Klebs-Loeffler bacillus. The membrane was seen for the last time on the eighth day after admission. On admission to hospital the temperature was 104° to 105°, pulse 130 to 140, but on the following day the temperature reached 105° and the pulse 150; one rose spot was found on the abdomen; the number of spots increased daily for seven days, and were unusually profuse and characteristic. Spleen enlarged, hemoglobin 90 per cent., and the number of leucocytes normal, 7,500. The temperature remained about 104° for a week and then fell by lysis to normal. Recovery."

Dr. Councilman in commenting on this case stated that[2] "while it is not at all true, or even probable, that all the pseudo-membranous inflammations of the pharynx in typhoid fever are due to the Klebs-Loeffler bacillus, this gives at least one positive case in which the organism was found. On the same day cultures were made from a case of virulent diphtheria, from a case of pseudo-membranous inflammation accompanying scarlet fever, and from this case of typhoid. In all these the identical organisms were found. Inoculations of guinea-pigs were made at the same time from the cultures obtained from these three cases. All three of the guinea-pigs died within 36 hours and the organisms were recovered from the animals in all cases. The pseudo-membranous inflammations accompanying typhoid fever are much more common than is usually supposed. In our ex-

[1] Am. Jour. Med. Sc., Nov., 1893, p. 524. [2] Ib., p. 547.

perience the membrane is more apt to be found just at the beginning of the esophagus, on the posterior pharyngeal wall, than at any other place. Like the scarlet fever pseudo-membranes, it is very probable that they are generally produced by the streptococcus, but, so far as we know, no bacteriological examination has been made in these cases."

In 1896 Hektoen, of Chicago (*Medicine*, 1896, vol. ii., pp. 265-274. This paper contains a bibliography of the cases of diphtheria and typhoid fever up to 1896), published two fatal cases of typhoid fever complicated with diphtheria, in both of which virulent Klebs-Loeffler bacilli were found. In the one case (man, 29 years old), in the membranes found post mortem in the pharynx, larynx, and esophagus, streptococci and staphylococci (citreus) were also present. Tracheotomy was necessary late in the third week of the disease on account of dyspnea and dysphagia; but the patient died soon after. The other case was also an adult man who very early in the disease had grayish-white membranes on the tonsils and soft palate. Klebs-Loeffler bacilli were found. Patient died three days after admission, in the second week of the disease.

Double infection with Klebs-Loeffler bacilli is also admitted by Dreschfeld[1] and Baginsky.[2]

Osler[3] reports the case of a young man, 22 years old, who on the sixteenth day developed a diphtheritic membrane on the lower lip, 2 by 3 cm.; the throat was reddened and inflamed, but presented no membrane. Cultures from the membrane showed diphtheria bacilli. None were found in the throat. On the same day 600 units of antitoxin were injected; the membrane cleaned off in a few days. This complication did not seem to influence the course of the disease in any way.

Catrin[4] reports the case of a young soldier who, on the nineteenth day of his typhoid fever, complained of difficult swallowing. The tonsils were swollen, especially the right; on the same side small submaxillary gland. Two days later two or three small whitish patches appeared on right tonsil; the condi-

[1] Allbutt's System, 1896, vol. i., p. 832.

[2] Die Diphtherie, Nothnagel's Encycl., 1898, Bd. ii., p. 270.

[3] Johns Hopkins Hospital Reports, vol. viii., 1899-1900, p. 458.

[4] Bull. et Mem. Soc. Méd. des Hôp. Paris, 1893, 3s., x., pp. 294-298.

tion was unlike Bouveret's ulcers or diphtheria. Two days later orthopnea; throat was completely covered with false membrane and coughed up membrane. In the latter pure cultures of Klebs-Loeffler bacilli were found. Death on same day. At autopsy it was found that the membranes extended into the finest bronchioli.

My own cases, which will be detailed below, also show that Klebs-Loeffler diphtheria does occur in typhoid fever and that it is by no means rare.

The bacteriological evidence of these various cases, therefore, justifies us in assuming that some of the cases reported by the older clinicians were infections with true diphtheria. It may also be added that two epidemics of this double infection have been reported, one by Oulmont[1] and the other by Holst.[2] Councilman[3] also states that Wagner (who called special attention to this subject) pointed out that pseudo-membranous throat inflammations accompanying typhoid fever were most frequent when epidemics of diphtheria prevailed at the same time.

The prognosis of these cases is gloomy, especially in children; it was fatal in the majority of cases reported. That recovery is possible, even after tracheotomy had been necessary, was shown in the case (boy, 8 years old) reported by Gayton.[4] (No cultures made.)

Recovery also followed in the case of G. E. Paget,[5] of a pregnant woman who during the course of her typhoid fever had two attacks of diphtheria, one of which lasted fifteen days. (No cultures made.) Osler's observation that the presence of the false membranes did not seem to influence the disease in any way coincides with my own experience in some of the cases reported below, only one of which was fatal. The diphtheria antitoxin was well borne in all of the cases.

Case I.—M. J., 25 years old, female nurse. Admitted June 6, 1899. History was typical of typhoid fever of one week's duration. On admission temperature was 105°; no Widal or Ehrlich reaction; Widal reaction was only partially obtained

[1] Arch. gén. de Méd., 1856.
[2] St. Petersburg. med. Wochenschr., 1884, N. F., i., pp. 17-19.
[3] Loc. cit. [4] Lancet, 1894, vol. i., p. 430.
[5] Brit. Med. Jour, 1883, vol. ii., p. 67.

on forty-ninth day of the disease. Roseola did not appear till twentieth day. On eleventh day complained of sore throat; on examination it was found red, dry, and glazed, with two small grayish patches on right tonsil. Cervical glands enlarged. Cultures from throat showed Klebs-Loeffler bacilli, streptococci, and staphylococci. Two doses each of 1,500 units of antitoxin were injected on June 12. On next day leucocytes were 12,000; general condition improved. Throat clear on June 15; cultures showed only staphylococci and streptococci.

The subsequent history was that of a very severe typhoid fever, the disease being complicated with a right pyelitis, lobar pneumonia of right lower and left upper lobes, singultus and a relapse. Temperature did not reach normal till fifty-fifth day.

Case II.—B. S., 20 years old; domestic. Admitted on November 27, 1899, to Female Ward 3 (service of Dr. Brill), with symptoms of typhoid fever of one week's duration; no Widal or Ehrlich reaction. The course of the disease was moderately severe. Temperature normal on thirty-seventh day (December 26). Relapse on January 6, 1900. On that day temperature rose to 102.6°, and she complained of severe headache and pain in throat. Grayish membranes found on both tonsils; cervical glands enlarged.

January 7: Temperature 101° to 101.6°; pulse 128 to 140 and very weak; respiration 32 to 44. Klebs-Loeffler bacilli having been reported from the throat cultures, the patient was isolated and 2,700 units of antitoxin were injected.

January 8: General condition much better; membrane disappearing rapidly from both tonsils, but the latter are still swollen and edematous.

January 9: Throat almost clear and patient is much stronger.

January 12: Throat cultures negative. Returned to ward.

January 31: Normal.

February 4: Slight temperature with enlargement of both tonsils.

February 5: White patch on both tonsils; cultures showed Klebs-Loeffler bacilli. Pulse, respiration, and temperature normal.

February 7: Tonsils clean; cultures negative. Pulse, respiration, and temperature normal.

February 11: Discharged from hospital cured.

Case III.—L. G., 14 years old; school-boy. Admitted to Male Ward 2, May 22, 1900.

The onset of this case being so peculiar, the history is given in more detail. The history of a fall, combined with the patient's general appearance, led at first to an erroneous diagnosis of cerebro-spinal meningitis.

Previous History.—Has had otitis media, but never had meningeal symptoms.

Present History.—Was well up to May 15, when he fell and struck on his head. This was followed by epistaxis. Walked home, ate supper, and slept well. Next day had epistaxis, vomiting, and headache. On 16th, 17th, 18th, and 19th, repeated epistaxis and vomiting. Constipated, frontal headache, but no abdominal distension. On 20th became noisy and delirious and continued so up to admission. No eruption was ever noted by parents.

Physical Examination.—General condition poor. Fairly nourished. Tongue moist and coated. Pupils normal. Some glands in neck. One macular rose spot in left hypochondrium. No tache cérébrale. Marked Kernig's phenomenon present. Cervical rigidity.

Lungs, Heart, and Liver.—Negative.

Abdomen.—Slightly retracted and rigid.

Spleen.—Not palpable. Upper border at eighth rib. Anterior border in anterior axillary line.

On admission: pulse 60, respiration 18, temperature 103.8°. Slight epistaxis Involuntary urination. Widal negative. Lumbar puncture negative.

May 23: Pulse dicrotic. Ehrlich reaction present. Ophthalmoscopic examination negative. Absence of Kernig's phenomenon and cervical rigidity.

May 24: Roseola more abundant. Kernig's phenomenon present.

May 25: Pulse 100; respiration 28; temperature 102° to 104.8°.

May 26: Widal negative. Roseola at tips of scapulæ. Trace of albumin in urine. Ehrlich reaction present.

May 27: Klebs-Loeffler bacilli found in throat culture. Found ulcer on right side of uvula and patches on uvula and fauces. Considerable rigidity of lower limbs. No photophobia. Sent to isolation house. Temperature 102.2°; given 2,000 antitoxin units.

May 28: Given 2,000 units more. Highest temperature 101.60°. Given nutritive enemata. Roseola disappeared from back. Spleen soft and palpable. Considerable tympanites. Widal positive.

May 29: Highest temperature 103.4°. No longer any membrane in throat.

May 31: Highest temperature 102.2°. Spleen still large.

June 2: Pulse, respiration, temperature normal. Transferred to Male Ward 2.

June 9: Pulse, respiration, temperature normal. Sterilized fluids.

June 11: Temperature going up; 100°. On fluid diet again. Throat a little reddened.

June 12: Limited soft diet. Temperature up to 105°. Plunges resumed.

June 14: Temperature 102° to 103°. Spleen still large to percussion. Not palpable. Plunged regularly (when above 103.6°).

June 18: Klebs-Loeffler bacilli again found in cultures from throat. No membrane, but redness of fauces. Re-transferred to isolation house.

June 20: Pulse, respiration, temperature normal.

June 22: Limited soft diet. Temperature normal.

June 25: Spleen still palpable.

June 27: Full diet. Back to Male Ward 2.

July 11: Discharged cured.

CASE IV.—N. R., 19 years old; peddler. Admitted to Male Ward 2, June 6, 1900.

Had had typhoid fever eight years previously.

Present History.—Typhoid-fever history of six days' standing. On admission, roseola present on back, abdomen, and arms; spleen enlarged. Abdomen tympanitic. Temperature 103.4°; pulse 84. Blood examination: reds 5,400,000, whites 9,050. Negative Widal.

Two days after entrance, throat was complained of; it was deeply reddened, but no membrane could be seen. Cultures made and Klebs-Loeffler bacilli were found. Temperature 100.6° to 103.6°, pulse 88, respiration 24. Sent to isolation house and 2,000 units of antitoxin injected. On June 14, normal, but Klebs-Loeffler bacilli still present. Roseola has disappeared; spleen still enlarged (to percussion).

June 17: Throat free from diphtheria bacilli.

June 29: Discharged.

It is to be noted that the Widal reaction was never positive.

CASE V.—J. P., 12 years old; school-boy. Admitted to Male Ward 2, service of Dr. H. W. Berg, September 1, 1900.

Present History.—Headache, poor appetite, vomited. Eight days' duration. Diarrhea (no blood).

Physical Examination.—General condition good. Well nourished. Tongue clean, very red and moist. One maculopapular rose spot on left arm. Lungs, heart, and liver negative. Spleen not palpable. Abdomen moderately distended. Otherwise negative. White blood cells 7,400. Temperature 103° to 105°, pulse 100, respiration 22. Plunges. Quite delirious.

September 8: General condition good. Spleen palpable. Roseola marked. Stools loose and greenish. Temperature 101° to 103.2°, pulse 100, respiration 22.

September 15: Highly delirious at times. Dulness on left side of scapular region; below angle, flatness, and diminished voice and breathing. Ehrlich reaction still present in urine. Temperature 105° to 105.6°. Fresh crop of roseola. White cells 7,000.

September 22: Widal positive. Redness and congestion of pharyngeal mucous membrane. Temperature 104.4°.

September 24: Subsultus marked. Chest about same. Some cough. Marked congestion of pharyngeal wall, and firmly adherent membrane on base of uvula which bleeds on attempts to remove it. Bacilli suspiciously like Klebs-Loeffler reported. Transferred to isolation house. Pulse 128, respiration 38, temperature 103.2°; 3,000 antitoxin units injected.

September 25: General condition much worse. Pulse 148, respiration 38, temperature 101.4° to 102.8°. Patient delirious. Tongue dry. Subsultus marked. Abdomen distended and tympanitic. *Spleen.*—Dull seventh space, anterior axillary line; not palpable, on account of tympany. No tympany over liver. *Lungs.*—Dull note and very poor breathing at both bases. *Throat.*—Exudate around base of uvula.

September 27: General condition slightly better. Alternating delirium and stupor. Sibilant and sonorous breathing posteriorly. Pulse 130, respiration 32, temperature 100° to 104°. Involuntary urination. Over buttocks and left scapula are vesicles, which first contain fluid and then become hemorrhagic.

September 30: General condition much worse to-day. Hard to arouse. Some rigidity of neck and spine. No tache. Pupils react to light and accommodation. Pulse 138, respiration 32, temperature 99° to 104°. Complains of pains in abdomen.

October 2: General condition about same. Tympany over liver, and seems to be slight bulging in the hepatic region.

October 6: Opisthotonos present. General condition seems to be somewhat brighter. Abdomen still tender. Pulse 148, respiration 32, temperature 101° to 102.8°.

October 13: Much emaciated, but general condition improving. There is a discharge from left ear, and tenderness over mastoid.

October 20: General condition much worse. Pulse 130, respiration 26, temperature 100° to 103.8°. Dulness and moist râles at angle of scapula (left side). Heart very weak. Petechial hemorrhages on front of chest. Edema of eyelids.

October 21: Died. No autopsy.

I wish also to call attention to certain peculiar ulcers of the pharynx which occur in typhoid fever and which were first

described by Bouveret in 1876, and after him by Duguet, Féréol, Landouzy, and others.

These ulcers have recently been carefully studied by André Schaefer.[1]

These ulcers are situated on the anterior pillars of the fauces, and, as they have certain typical features, may be even pathognomonic of typhoid fever; and since they occur especially in the early stages of the disease, they may even be of value in establishing an early diagnosis. Duguet, Lecorché, Vaisson, and Schaefer have reported cases in which these ulcers were observed before the roseola had appeared. The size and situation are very characteristic; as a rule they are symmetrically placed on the anterior pillars of the fauces, and are oval in shape, averaging about 6 to 20 mm. in length and 4 to 12 mm. in width, the long axis of the ulcer being parallel to the long axis of the tonsil. They are often surrounded by a small hyperemic halo; the base of the ulcers is grayish-yellow or grayish-red in color, usually smooth, but sometimes granular; there is no false membrane nor is there any marked glandular enlargement. As a rule they are single; sometimes there are several smaller ulcers which coalesce into one large one. For two or three days they may increase in size and depth, but then heal rapidly within five days. The average duration, according to Schaefer, is about twelve days.

In five cases examined bacteriologically Schaefer was unable to find typhoid bacilli in these ulcers; only the ordinary bacteria of the mouth were obtained. Their presence is explained by the fact that these areas are part of the digestive tract which are rich in lymphoid tissue. As such, they are specially exposed to the action of the typhoid bacillus or its toxins; as the result of which necrosis of the epithelium follows, if its vitality has been lessened by dryness of the mouth, the relative immobility of the pillars of the fauces, and compression; this process is hastened by the coaction of the ordinary saprophytes of the mouth.

Although I have looked for these ulcers during the past few years, yet none have come under my observation. For one case,

[1] L'ulceration des piliers du voile du palais dans la fièvre typhoide. Paris Thesis, 1899. This essay contains a very complete bibliography.

however, I am indebted to Dr. H. W. Berg, to whose service the patient was admitted. The abstract of the history is as follows:

Case VI.—M. F., 15 years old. Admitted to Male Ward 2, August 31, 1899. Eight days' history of malaise, fever, headache, occasional vomiting, diarrhea, and abdominal pain. Three days ago began to have sore throat and slight cough.

On admission he presented a typical picture of early stage of typhoid with a few roseolæ on abdomen and back. Tongue coated; edges and tip clean. On both anterior pillars of fauces are small, symmetrical ulcers (one on each pillar), with prominent edges and covered with a whitish, atypical patch. General redness of pharyngeal mucous membrane. Cultures from the throat show Klebs-Loeffler bacilli. Widal reaction negative. Ehrlich reaction negative. Temperature 104.2°, pulse 104, respiration 32.

Cultures from throat on next day were negative.

September 9: Ulcers in pharynx persist. Widal and Ehrlich reaction still negative. Course in all respects typical of moderately severe typhoid fever.

September 27: Temperature normal. Ulcers in pharynx persist and present a brilliant red surface with well-defined edges.

September 30: Relapse; this lasted till October 12. Unfortunately there is no note of the time of the disappearance of the ulcers.

It will be noted that the ulcers in this case were typical in situation and size and number; yet differed, inasmuch as there was an atypical whitish patch, that Klebs-Loeffler bacilli were present for one day, and that the ulcers lasted over three weeks. Clinically, therefore, they cannot be considered as typical Bouveret's ulcers, but must rather be regarded as Bouveret's ulcers with a diphtheritic infection.

Very little comment need be made on these cases, since they prove conclusively the correctness of the views of Councilman, Hektoen, and others that true diphtheria may occur during the course of typhoid fever, and they also disprove Curschmann's statement to the contrary.

The importance of Case IV. of this series is questionable, since there was no false membrane and the presence of the

Klebs-Loeffler bacilli in his throat did not affect the course of the disease in any way.

To determine the frequency of the presence of Klebs-Loeffler bacilli in the ordinary course of typhoid fever, cultures were taken from the throats of twenty cases of the disease in 1899 and 1900; but in not one of them were they found.

Unfortunately the virulence of the diphtheria bacilli was tested in but one case, and in this the guinea-pigs survived inoculation. That we were not dealing with very virulent organisms was also proven by the fact that but one in this series of six cases was fatal. However, this question of virulence was determined in the positive results of Councilman quoted above.

VIII.

ACUTE LOBAR PNEUMONIA, FOLLOWED BY PURULENT PERICARDITIS; PERICARDOTOMY; RECOVERY.

By Morris Manges, M.D.,
ATTENDING PHYSICIAN,
AND
Howard Lilienthal, M.D.,
ATTENDING SURGEON.

Harry H., 15 years old, was admitted to Male Ward 2, July 6, 1899.

Family and Previous History.—Negative.

Present History.—Is of three days' standing. Present illness began with chill, fever, cough, and expectoration. The latter have persisted with a moderate diarrhea. On admission his general condition was good, cheeks flushed, thickly coated tongue. Temperature 104.4°, respiration 30, pulse 120.

Physical Examination. Lungs.—Dull note anteriorly at left apex and in right axillary line. In the former area there were bronchial breathing and voice, with occasional crepitant râles; in the latter, broncho-vesicular breathing. Posteriorly dulness over left apex and right base, with increased voice and fremitus and bronchial breathing over these areas.

Heart.—Area normal; action rapid and irregular; blowing systolic murmur at base, with accentuation of second pulmonic sound.

Abdomen.—Very distended and tympanitic. Liver extends from sixth rib to free border. Spleen not enlarged.

Blood.—5,000,000 red cells, 25,000 white cells. Widal reaction negative.

Urine.—Trace of albumin and diminished chlorides.

Medication.—Calomel; heroin, one-twelfth grain, every four hours; sponge baths.

July 7: Temperature ranged from 102° to 105°, respiration 36 to 46, pulse 104 to 124. Cough increased; no expectoration.

General condition worse; had to be catheterized; frequent vomiting. Total quantity of urine 37 ounces. Physical examination unchanged.

July 8: Patient extremely prostrated. Fever ranged from 102.2° to 104.2°, respiration from 40 to 84, pulse same. The respiration was extremely shallow and rapid. Strychnine and whiskey added. Physical signs show well-marked pneumonic processes at left apex and right base.

July 9: General condition same. Temperature ranged between 101.4° and 104°, respiration between 42 and 66. The physical signs at the right base showed marked flatness, distant bronchial breathing. Fluid being suspected, this area was aspirated with a negative result.

July 10: General condition better, except for the difficulty in breathing, respiration being above 50 for the greater part of the time. Examination of the heart showed no change. Widal examination again negative.

July 11: Respiration still very high, being very difficult and superficial; average rate being about 66; fever ranges between 101° and 103°. Physical examination showed flatness and bronchial voice and breathing over both lungs anteriorly. Crepitant râles all over left lung anteriorly, fremitus increased over left base. Posteriorly well-marked pneumonic signs over left apex and both bases. The same distant sounds over right base. Traube's space tympanitic. Stomach very much distended. Liver extends from sixth rib to free border. Spleen somewhat enlarged. Small amount of rusty sputum, in which pneumococci were found. It is to be noted that the heart area was normal; no displacement. For the first time complained of pain over heart; ice bag applied.

July 12: Short, dry cough. Respiration ranged from 64 to 92, temperature 102°. Physical examination: Anteriorly somewhat tympanitic note, except at left apex and both bases where it is flat. Traube's space tympanitic. Bronchial breathing and voice, especially at left apex and right base. Numerous crepitant and subcrepitant râles all over anterior surface. Posteriorly unchanged. Heart unchanged.

July 13: General condition much better. Respiration less labored, pulse more regular and fuller, temperature between 101.8° and 103°. Numerous redux râles at left base, pulmonary signs otherwise same as yesterday.

July 14: General condition unchanged; still had to be catheterized. For the first time a to-and-fro friction murmur is heard over the pericardium. Consolidated areas in lungs resolving. Pilulæ massæ hydrargyri, 1 grain, t. i. d.

July 15: Signs of resolution are progressing; pericardial

murmur persists; no signs of fluid in pericardium. Pulse regular and ranged between 100 and 120, respiration from 48 to 72, fever from 101.4° to 102.6.°

July 16: Pericardial murmur decreased in intensity; signs of resolution increasing; general condition improved. In the evening it was noticed that the pericardial murmurs were less marked, the heart sounds were distant; area of the heart had increased, especially to the right. Rotch's space flat; the upper and left border of the heart has advanced one-fourth inch outwardly. Pulse very irregular and intermittent, dicrotic, 96 to 110; temperature between 101° and 103°, respiration 48 to 64.

July 17: Pulse very irregular and weak, paradoxical pulse not distinctly evident on account of the irregularity of the pulse. Friction sounds very much less distinct, heart sounds are more distant. Apex in fourth space, left border, one-fourth inch further out than yesterday, right also increased one-fourth inch. Signs of resolution still progressing. Traube's space is flat, sounds at left base distant. Intercostal spaces still move. Tincture of digitalis and caffeine added. Respiration 36 to 62, temperature 102° to 103°.

July 18: Fever 100.6° to 101.8°, respiration 48 to 60, pulse 108 to 120. Physical signs unchanged.

July 19: General condition better, resolution slowly progressing; left border of heart one-fourth inch from nipple line, apex still in fourth space; paradoxical pulse still present. Some tenderness over gall bladder.

July 20: Sternum flat from second rib to ensiform cartilage; left border in nipple line; apex beat same; heart sounds distant; friction murmur very indistinctly heard.

July 21: Patient has been steadily improving; pericardial friction sound gone; slight systolic murmur heard over apex; heart action slow and more regular. Heart area smaller. Dulness less marked anteriorly on left lung; right base flat posteriorly, with diminished voice, breathing, and fremitus.

July 22 to 27: General condition improved steadily. Temperature ranged between 100° and 102°, respiration 36 to 48, pulse 96 to 108. Appetite and sleep good.

During the next week the patient gained so rapidly that projected aspiration of the pericardial sac was not done.

July 28: The resonance over the right base posteriorly again became flat, with distant voice in breathing. Aspirated with negative results by Dr. Berg, into whose charge the patient now came.

During the next week patient kept constantly improving; the persistence of moderate temperatures and the failure of the lungs to resolve completely led to frequent examination of the

sputum for tubercle bacilli, with negative results. Numerous streptococci and pneumococci present. On August 6, friction sound returned over base of heart, sounds of heart much more distinct. Temperature 99.8° to 101°, respiration 28 to 42, pulse 90 to 110.

August 9: Friction sound gone, sounds more distant, the area of pericardial dulness has again increased and is now one-half inch to the left of the nipple. Temperature 100.2° to 101°, respiration 32 to 42, pulse 104 to 114. White cells, 15,000.

August 10 to 13: General condition improved; temperature 100° to 102°, respiration 26 to 40, pulse 110.

August 14: Patient's condition not so good; frequent vomiting; pulse rapid and irregularly intermittent; pericardial signs same. The pericardium aspirated in fifth space, 1½ inches to the left of the sternum border, and 18½ ounces of bloody pus withdrawn. After aspiration, the sounds were still distant, fine crepitating râles were heard over the cardiac area, the left border is 1½ inches further inward, the upper border is opposite the third rib, right border 1 inch inward. General condition improved, pulse still rapid and irregular. Fever ranged between 100° and 101°, respiration between 30 and 40. Pure culture of pneumococci was found in the aspirated pericardial fluid.

August 15: General condition better; pulse decidedly better, 106, and paradoxical; crepitant râles over cardiac area disappeared; heart sounds are still distant, apex beat fourth space, upper border is at the lower border of the second rib, right border extends from sternum border downward and outward so that at the base it was 1 inch to the right of the sternal border, left border is 1 inch beyond the nipple line.

In the afternoon was operated on by Dr. Howard Lilienthal. Condition after operation excellent; pulse decidedly improved in quality; dyspnea much lessened. Slept well.

August 16: Pulse kept at 104 and irregular. Temperature ranged between 99.8° and 101.6°, respiration 28 to 36. Heart: Upper border at lower border of second rib; right, above, one-fourth inch to right of left sternal border; below, 1 inch to right of sternum; left border 1 inch within nipple line. Sounds distant but clear. Crepitant murmur has disappeared. Good pulmonary resonance, especially in right axillary line. Little increased breathing over left base; broncho-vesicular breathing, with a few crepitant râles over right base. Profuse discharge from wound.

August 17: Generally better, except that there is dyspnea more marked; signs of consolidation over both lungs posteri-

orly. Pulse 120, temperature 102°, respiration 42. Profuse discharge from wound; pericardial cavity washed out.

August 19: Better; lungs clearing up. Left lung clear on August 22; right on August 25. On this date pulse 112, respiration 38, temperature 100°. General condition excellent; discharge lessening.

August 28: Temperature normal, pulse regular and 108, respiration 32.

September 1: Upper angle of wound closed; small opening in lower part; slight discharge.

September 4: Out of bed.

September 6: No discharge. Area of deep cardiac dulness; upper border second space; right border midsternum; left, one-half inch within mammillary line. Apex beat in fourth space; action forcible and regular; no murmurs.

September 19: Wound entirely closed.

September 27: Discharged cured.

The boy was examined a number of times during the past year (1900); he is in excellent condition and is able to run about and ride a bicycle, as a telegraph messenger boy, without any discomfort; and, beyond a scar, a retracted apex beat, and an occasional paradoxical pulse, there are no evidences of any lesions in his heart and lungs.

Although this case presents a number of very interesting features, attention will only be directed to the changes in the pericardium. It is to be noted that when pericarditis and the signs of fluid in the pericardial sac first appeared, there was no change for the worse in the patient's general condition; and as, in spite of the persistence of the signs of fluid, the patient gradually improved, it was deemed wisest not to aspirate the pericardium. The exudation at this time was probably serous. The rapid change for the worse two weeks later was presumably due to an increase in the quantity of the fluid and to its becoming purulent. It is a matter of clinical experience that the pneumococcal exudates do not produce marked general sepsis. This latency as regards symptoms has been referred to by numerous writers. In this respect this feature resembles simple pericardial effusion, which, for this reason, so often escapes notice. A most striking instance of this is the case reported by McConnell.[1] Percy Kidd[2] reported a case in which several

[1] Loc. cit. [2] Brit. Med. Jour., Dec. 22, 1900, p. 1794.

ounces of pus were found in pericardial sac on postmortem examination, and yet during life no positive sounds had been heard over the pericardium. Whitaker has also recorded some remarkable instances of this in serous effusions.[1] The cases in which either streptococci or staphylococci or colon bacilli are found alone or as a mixed infection with the pneumococci are much more septic. It is worthy of attention that the number of these reported cases of pure pneumococcal infections of the pericardium is rapidly increasing; indeed, Scars believes that pneumococci are the cause of many of the so-called spontaneous pericarditides. In this view he is supported by Eichhorst, who found them in eight out of twenty-seven cases of so-called idiopathic pericarditis. It is also to be observed that pure cultures of pneumococci have been found in a large number of purulent pericarditides, both in those secondary to pneumonia and also to other causes.

The various cases of suppurative pericarditis which have been operated upon have been so carefully analyzed and discussed by Bohm,[2] Shattuck,[3] Roberts,[4] and McConnell,[5] that any further consideration of this subject becomes entirely superfluous.

To these cases may be added the following which have since been published:

Poynter[6]: Girl, 4½ years old, had right lobar pneumonia, after which she developed empyema and purulent pericarditis; both drained; pneumococci found in pus. Death.

Brentano[7] reports two cases, both in children 7 years old, with purulent pericarditis the result of osteomyelitis. Both died of pyemia, in spite of operation.

Sevestre[8]: Man, 22 years old, developed pus in pericardial and both pleural sacs after pneumonia. Aspirated 23 ounces of

[1] Twentieth Century Practice, vol. iv., pp. 20-23.
[2] Deutsch. med. Woch., Nov. 26, 1896.
[3] Boston Med. and Surg. Jour., May 7, 1897.
[4] Am. Jour. Med. Sciences, Dec., 1897, p. 642.
[5] Montreal Med. Jour., 1897, vol. xxvi., p. 629.
[6] Lancet, Feb. 12, 1898, p. 435.
[7] Deutsch. med. Wochenschr., 1898, No. 32, p. 506.
[8] Lancet, vol. i., 1898, p. 1109.

creamy pus from the former; and at operation shortly after 45 ounces more escaped. This gave great relief; but two days later it was necessary to resect a rib and drain both pleural cavities, 15 ounces being removed from the left and 20 ounces from the right. Pure cultures of pneumococci found in each variety of pus. In spite of temporary improvement, the patient finally died.

Fawcett and Stewart[1]: Boy, 8 years old. On seventh day of right lower lobar pneumonia signs of pericarditis appeared. Eleven days later, after having aspirated pus containing pneumococci, pericardium was drained by resection by fifth left costal cartilage. Condition much improved after this. Two weeks later died of right empyema of streptococcal origin. At autopsy pericardial sac contained no pus and was in excellent condition.

Of this series of cases, eight (including our own case) were consecutive to pneumonia; of these, four recovered and four died. This is a most brilliant result, which becomes the more striking when contrasted with the record of nine cases published by Ferrier,[2] all of which died after aspiration. Another point deserves mention, namely, in all of these cases of recovery special attention was directed to the fact that the action of the heart was excellent when the patients were examined months after the operation. The amount of adhesions seems to be much smaller than would *a priori* have been anticipated, and practically the heart seems functionally competent. This was also true in the present case, as shown by repeated examinations which were made at intervals for 18 months after the operation.

SURGICAL HISTORY BY DR. LILIENTHAL.

The operation took place at 4 o'clock on the afternoon of the 15th of August. It was then that I first saw the patient. He seemed to me to be an extremely nervous boy, in such a wretched physical condition that I was far from sure that he would survive any surgical procedure. His pulse was rapid and flickering; his respiration difficult, almost gasping; and his color, while not actually cyanotic, was of an ashen pallor suggestive of pyemia. I feared to administer ether, because of the presence of pulmonary inflammation, while chloroform

[1] Brit. Med. Jour., Dec. 22, 1900, p. 1784.

[2] Bull. gén. de therap. méd. et chir., 1889, tom. i., p. 107.

seemed particularly dangerous from the likelihood of fatal syncope. Eucaine, because of its stimulating qualities, appeared to me to promise the best result, especially since the employment of this drug would not contraindicate the administration of a few whiffs of chloroform, should this become necessary.

Sixty minims of a 6 per cent. solution of the eucaine were injected along the lines of the purposed incisions, a few minutes after the hypodermatic administration of five minims of Magendie's solution of morphine, which had been given more as a mental sedative than with any idea that it would exert an analgesic effect. During the operation five minims of the tincture of digitalis and the thirtieth of a grain of the sulphate of strychnine were the amount of the stimulation. Dr. Foord, the House Physician of the hospital, talked in a soothing and reassuring manner to the patient during the entire time, taking his attention, so far as possible, from what was going on. This I consider of extreme importance in all cases in which local anesthesia is employed. The patient's right arm was disinfected and bandaged, in order that everything should be ready for intravenous saline infusion on the appearance of symptoms of collapse. The patient was not told that an incision was to be made, but was led to believe that another aspiration was contemplated. So far as the anesthesia is concerned, I will merely state that the patient did not know that an operation was being performed and that he asserted immediately afterward that he had felt no pain.

It had been my intention to make a trap-door opening, the door itself consisting of sections of the fifth and fourth costal cartilages, with the skin and intermediate structures turning on a hinge consisting of the soft parts of the third interspace, much after the manner, as I afterward learned, suggested by Roberts in his excellent paper.[1] The condition of my patient, however, was such that it seemed wisest to limit myself to the shortest surgical procedure which promised to accomplish drainage.

A vertical incision was made from the fifth to the third interspace, and a horizontal one of about equal length, two and one-half inches, leftward from the lower extremity of the first. Raising the triangular flap of skin and muscle, about three-quarters of an inch of the fifth cartilage was resected with bone forceps and cartilage knife, beginning about half an inch or less from the sternal border. Hemorrhage was insignificant. It was now found that the interspaces were so wide that there would probably be ample room for drainage without the resection of a second cartilage, so the muscular fibres and infiltrated

[1] Amer. Jour. Med. Sci., 1897, vol. cxiv., p. 642.

mediastinal tissues were divided with the knife for at least a quarter of an inch. Not entering the pericardial sac at this depth, I feared, from the strong pulsations which were visible as well as palpable, that I might be incising an adherent heart, so the aspirating needle was pushed through another quarter of an inch of tough, leathery tissue and the presence of the pus demonstrated. The cavity was then incised, when there was a great gush of pus. The quantity was estimated as 36 ounces by the gentleman who wrote the history, but it appeared to me that this estimate was much too low.

A few silk sutures were used to hold the skin in contact with the pericardium, in order that the wound might remain patent, for I feared to employ a tube on account of what seemed to me the danger of injury to the heart from constant rubbing. The pericardium was so thick and rigid that the skin was actually drawn in instead of the pericardium being drawn out.

I will not go into the subsequent history, except to say that occasional saline irrigation was practised with the help of a soft rubber tube, always taking great care that the fluid should run out as fast as it ran into the pericardium.

Twenty-three days after the operation the patient was out of bed, and six weeks after the operation he was discharged from the hospital.

It is my wish to call attention to the fact which must be apparent to any one who has kept pace with the progress of the art of surgery, viz., that pus within the pericardium is subject to the same natural laws which govern the presence of pus elsewhere. Pyopericardium is, therefore, a surgical disease and should be so regarded from its inception. Only harm can come from delay, for, so far as I am able to learn, those cases which were treated by drugs or even by repeated tappings have resulted fatally. The operation is not technically a difficult one and it may be done with little or no pain with the aid of local anesthesia. Cocaine has been advised by Brentano, of Koerte's clinic in Berlin. A case in the practice of Prof. Bradbury, of Cambridge, was operated upon with 4 per cent. cocaine as the anesthetic, though it was done in two stages, pus being not demonstrable by the aspirator after the pericardium had been exposed. Pure blood was withdrawn instead, so the patient was sent to bed. Two days later a director was forced into the pericardium and on the following day ether was given for the resection of rib.

Bohm,[1] in 1894, drained a suppurating pericardium following influenza, with the aid of Schleich's infiltration anesthesia. The drainage did not require resection of the cartilage or rib, however, the work being done through the third interspace. Recovery followed.

Eucaine seems to me to be the best local anesthetic for operations of this kind, unless, indeed, it should be superseded by nirvanin, with which I have had a more limited experience.

There is danger of infecting the pleural sacs if special care is not taken to avoid wounding them, and, should the wound extend below the sixth rib, Roberts has pointed out the possibility of the accidental opening of the abdomen. This is not very apt to occur, however, when the pericardium is tensely distended, pushing the diaphragm downward. The internal mammary vessels should be avoided, and in order to be sure that this is done the surgical rule of exposing the dangerous region, in order the better to keep clear of it, should be followed.

Irrigation of the sac should be practised with great caution for fear of syncope due to interference with the already exhausted heart.

Finally, let me emphasize the fact that the apparently simpler operation of tapping is, in reality, more dangerous than incision, since the motions of the heart are not unlikely to cause tearing of a coronary vessel by the needle. The more completely the pericardium is emptied the greater is the danger of this accident. It is, therefore, advised that only sufficient fluid for diagnostic purposes should be withdrawn and that incision and drainage should follow this without procrastination.

[1] Deutsch. med. Woch., Nov. 26, 1896, p. 769.

IX.

A CASE OF EXOPHTHALMIC GOITRE WITH DIABETES MELLITUS AND PIGMENTATION.

By Morris Manges, M.D.,

ATTENDING PHYSICIAN.

Emma H., 44 years of age. Admitted to Female Ward 3, May 16, 1899. Born in Germany; married; housewife.

Family History.—Negative.

Previous History.—Was quite well, with the exception that "she was always nervous," up to nine years ago, when she had exophthalmic goitre. For this she was treated by Mendel, of Berlin; electricity did not help her, but she was greatly improved by hydrotherapy (hot packs, douches, etc.). After this she gained very much in weight and considered herself well until the onset of the present trouble. At no time has she had any mental shocks; she dislikes sweets. Has had yellow patches on her face for the past two years. She has never been pregnant, and had her menopause eighteen months ago.

Present History.—Her present illness is of six months' standing, the first symptoms being marked thirst and polyuria. She also began to lose flesh and to have severe cardiac palpitation. Her appetite was ravenous. No pulmonary symptoms. Her chief complaint for which she enters hospital are general weakness, emaciation, and thirst.

Status Presens.—General condition poor; badly nourished. Discrete, irregularly shaped patches of brown pigmentation on left side of face and on dorsal surface of both feet and over left hip. These pigmented areas vary in size from a small bean to areas several inches broad. There is also a ring of pigmentation about umbilicus. The color of these areas is a dull pale brown, the pigmentation being most marked about the navel and on the left hip. No scaling of epidermis. Some of these areas are surrounded by white atrophic zones; in a few places these leucodermatous patches are in the pigmented area. Careful examination failed to reveal any pigmentation on any of the mucous membranes. The tongue is dry and cracked. Marked exophthalmos. Moderate goitre.

Lungs.—Negative, with the exception of harsh breathing in both apices.

Heart.—Area and situation normal; no murmur; tachycardia, 110.

Liver.—Extends from sixth rib to two fingers' breadth below costal border; the edge feels firm and smooth.

Spleen and Stomach.—Negative. The relaxed condition of the abdomen permits easy palpation of the viscera. No ascites.

Enlarged glands in groin and axilla. Small exostosis on first left rib. Weight 63 pounds.

Urine.—Clear, acid, 1020, trace albumin, 5 per cent. sugar, no acetone or diuretic acid; microscopically negative. On day of admission total daily quantity 36 ounces (900 grains sugar daily). This small quantity of urine was only temporary, since, after a few days, it rose to 86 ounces, with increased specific gravity averaging 1034. During June the daily quantity rose to 195 ounces (4 per cent. sugar; total amount of sugar 3,000 grains!). At all times it was over 100 ounces. During July the highest daily loss of sugar was 2,560 grains. In August it was constantly above 2,000 grains. In September it was lower and averaged 800 grains. In October it again increased; one day even 4,375 grains were excreted (175 ounces, 5 per cent.). In December and January it remained fairly high, ranging between 680 and 2,300 grains. On February 12, shortly before her death, it was still considerable, *i. e.*, 1,485 grains (99 ounces, 3 per cent., specific gravity 1016). The percentage of sugar was usually over 4 per cent., ranging between 2 and 6 per cent. The average loss of sugar was between 1,300 and 1,800 grains daily. Acetone appeared within a week after her admission and persisted for a long time; its absence was first noted on August 15, and it was absent until September 4 (20 days), when it again appeared; but its presence was only temporary, and it was not found for a long time until January 25, 1900, when it reappeared and persisted until her death. Traces of albumin were reported from time to time; after November 15 a trace was always present. No casts were found at any time.

The clinical features were the ordinary symptoms of a severe diabetes, and exophthalmic goitre not manifesting itself by any phenomena except a moderate tachycardia (average 102 to 106). Severe neuralgic pains were present at different intervals; they were especially marked in the arms and legs, and after lasting a varying period would disappear. For a time small doses of dried thyroid gland (one-half grain) markedly relieved them, but in subsequent attacks it was not followed by any relief. Has often complained of severe headaches. Oc-

casional attacks of diarrhea occurred. Her feet were more or less swollen at all times since admission and the edema never entirely disappeared.

Pulmonary symptoms were not prominent for a long time. There was a slight mucous expectoration; repeated examination failed to reveal any tubercle bacilli. On October 30 consolidation was found at the left base, followed by pulmonary edema. Temperature rose to 101° (F.). These signs gradually cleared up; occasionally a few crepitant râles appeared and disappeared.

Heart remains negative as to murmurs.

Spleen was at no time enlarged.

The liver varied but little in size, as reported at different examinations, the largest dimension at any time being that reported by Dr. Berg (August, 1899), who found the left lobe three inches below xiphoid cartilage, the right lobe two fingers' breadth below costal border in mammillary line. The edge is firm and smooth; once it was tender to palpation. Abdominal veins enlarged, but no "caput medusæ." On February 9, 1900, I found that it extended, as before, up to the sixth space above; its lower border was easily palpated as a thin, hard, smooth edge which extended two fingers' breadth below costal border in parasternal line, and three fingers' breadth in the mammillary line. On February 13 (day before her death) I reported the liver as extending from seventh space above; below, as above.

No ascites present at any time during the entire course of the disease.

The stools were repeatedly examined for free fat, with negative results.

Eyes examined by Dr. Gruening in May, 1899, with negative results.

No patellar reflexes present at any time.

Blood examination negative. Report on September 13: red cells 4,832,000, white cells 5,200, hemoglobin 75 per cent.

The skin was always dry, but pruritus was never a symptom. She stated that up to the time of the appearance of the diabetic symptoms she was much annoyed by hyperidrosis. Decubitus appeared in November, 1899, and was an annoying feature for some time.

The pigmentation of the skin on admission has already been described above. The possibility of the case being one of *diabète bronzé* at once presented itself; but, after careful consideration, a negative conclusion having been reached, Dr. Lustgarten, Consulting Dermatologist of the hospital, who saw the case, pronounced the pigmentation to be chloasma cachecticorum—an opinion which he maintained when he saw the case, six

months later, at the invitation of Dr. Rudisch, into whose service the case had then passed. I may also add that Dr. Goldenberg, Adjunct Dermatologist, subsequently coincided in this view.

For a time there was no change in the extent of the areas of pigmentation; then irregular, discrete patches of varying size appeared on outer aspect of both forearms and on arms. The areas on the left side of face grew larger and new discrete spots appeared on both it and the right side. Pigmentation also involved the sacrum and buttocks and, to a small degree, the inner aspect of the thighs. A few new areas also appeared on legs and trunk, on the outer surface of the labia, and on the mons veneris. These areas are in nearly all instances symmetrical in distribution, except on face and left buttock. From the onset this buttock was especially involved, as the patient usually lay on this part. It is also to be noted that this area was most deeply pigmented, and to it alone could the term "bronzed" be applied, since it alone had the characteristic look. All the other areas were a dull brown color. That the degree of color also varied from time to time was noticed by the patient. This was especially true of the upper extremities.

Her weight remained around about 63 pounds, as on admission, with slight gain and loss for a long time; then gradually gained till she weighed 74½ pounds (October 31), and then she gradually lost flesh and strength from intercurrent diarrhea and the pulmonary complication, till death occurred on February 14, 1900, from asthenia and cardiac failure.

REPORT OF POSTMORTEM EXAMINATION OF BODY OF EMMA H., MADE BY DR. E. LIBMAN, ASSISTANT PATHOLOGIST, ON FEBRUARY 15, 1900, 38½ HOURS POST MORTEM.

Slight rigor mortis; marked emaciation; no edema of legs; pigmented areas in skin, exactly as described in clinical history; moderate enlargement of axillary and inguinal lymph nodes.

Thyroid Gland.—Enlarged; lobes measure 7 cm. vertically; of firm consistence.

Lungs.—Left: Adhesions over upper lobe; adhesions between the two lobes. Upper lobe markedly anthracotic. Lower lobe less so; salmon-colored. Some subpleural emphysema. In centre of upper lobe there is a cheesy area 1½ cm. in diameter. Upper lobe contains numerous miliary tubercles, lower lobe contains a moderate number. Both lobes show a marked purulent bronchitis and congestion. *Bronchial Nodes.*—Anthracotic, moderately enlarged. *Right.*—More markedly anthracotic and

congested. Marked emphysema of upper lobe. In lower lobe there is a large area, brownish in color, which does not crepitate well, but which is quite edematous.

Heart.—Slight increase of pericardial fluid. Weight, 270 grammes. Slight atrophy as a whole. Right auricle dilated; tricuspid and pulmonary valves negative. Wall of left ventricle somewhat thickened, measures 2½ cm.; wall of right ventricle is ¾ cm. thick. Free edge of mitral flaps slightly thickened. Small hemorrhagic area in endocardium of left ventricle, 1 cm. in diameter. Endocardium, between mitral and aortic valves, thickened. Aortic valves negative. Heart muscle brownish (brown atrophy). Moderate atheroma of aorta and coronaries.

Abdomen.—Diaphragm at fourth interspace, on right side; at fifth, on left side. No ascites.

Spleen.—Small; weighs 290 grammes; measures 12 x 5½ cm. Pulp pale, soft. Scattered small hemorrhagic areas

Kidneys. Left.—Normal in size; weight 165 grammes; measures 7 x 12½ cm. Capsule adherent in one place; two small depressions on surface. Cut section pale, except for medulla, which is congested. Markings of medulla distinct. Cortex and central part of medullary pyramids somewhat yellowish. *Right.*—Same as left. Weight 150 grammes; measures 7 x 12 cm.

Adrenals.—Negative.

Pancreas.—Weight 45 grammes. Somewhat atrophic; on section, pale, soft.

Gall Bladder.—Moderately distended with dark, viscid bile. No obstruction in ducts.

Liver.—Extends to 1⅓ cm. below free border of ribs. Left lobe is pale; right lobe, dark. Cut surface is rather pale, with markings of chronic congestion. Weight 5,325 grammes, width 23½ cm.; antero-posterior measurement 14 cm.

Intestines.—Upper part of small intestine contains thin, bile-stained contents; wall yellowish-brown; swelling of mucous membrane. Ileum shows acute catarrhal inflammation, solitary follicles enlarged. Transverse and descending colon contracted; vessels in wall engorged. Lower part of descending colon shows marked congestion and acute inflammation. Vessels in *mesentery* and *omentum* congested. Parts of the peritoneum on the right side of the abdomen, and some of the coils of small intestine, are slightly yellowish (postmortem bile imbibition?). *Mesenteric lymph nodes* enlarged moderately; pale in section.

Uterus and Ovaries.—Atrophic.

Brain.—Atrophic. Increase of subarachnoid fluid. Veins on

surface engorged. Vessels in interior of brain very distinct. Distension of vessels in choroid plexuses. Medulla shows no visible changes.

Diagnosis.—Anemia; congestion of all organs; pigmentation of skin; goitre. Tuberculosis of left lung; purulent bronchitis. Anthracosis. Anthracosis of bronchial lymph nodes. Brown atrophy of heart; hypertrophy of left ventricle; atheroma of aorta. Congestion of kidneys. Chronic congestion of liver. Acute inflammation of intestinal tract. Atrophy of uterus, ovaries, and brain.

REPORT OF MICROSCOPIC EXAMINATION BY DR. F. S. MANDLEBAUM, PATHOLOGIST.

Specimens of the various organs were fixed and hardened both in 10 per cent. formalin solution and in absolute alcohol, and, after being embedded in celloidin, were cut. Sections were stained in various carmine solutions and in hematoxylin.

Thyroid Gland.—A moderate glandular hyperplasia is seen, and there is also a slight increase in the interstitial connective tissue. A moderate amount of round-celled infiltration is present near the surface of the gland. Here and there are some small deposits of lime, and in these situations are small areas of hyaline degeneration.

Lungs.—A moderate amount of anthracosis is seen. There are several areas of tuberculosis in a state of cheesy degeneration, containing tubercle bacilli, and here and there a moderate amount of purulent infiltration is noted.

Heart.—The individual muscle fibres are somewhat widely separated from each other, but the striations are distinctly seen and the nuclei take the stain well. No interstitial changes and no fat are present. Light yellowish particles of pigment are seen in most of the fibres, mainly surrounding the nuclei (brown atrophy).

Kidneys.—The capsule shows a slight amount of pigmentation. There is an increased amount of interstitial connective tissue present, mainly in the cortex, and the epithelium of the tubules shows parenchymatous degeneration.

Adrenals.—The usual normal pigmentation is seen in the cells of the medulla.

Pancreas.—The surface shows a narrow layer of pigmentation of a yellowish-brown color. Some of the cells are swollen and degenerated, and the nuclei in these areas stain poorly (post-mortem change?). A slight amount of inflammation is also seen. Here and there a slight increase in connective tissue is

noted. No pigment is to be found excepting upon the surface of the organ.

Liver.—The capsule is somewhat thickened, and underneath it is seen a diffuse layer of yellowish-brown pigment. The sections show chronic congestion and some fatty infiltration. There is no cirrhosis present. In the liver cells are particles of yellowish-brown pigment, finely granular in character. This is seen only in small areas and is not generalized.

Skin.—Dark-brown pigment is found in the lower layers of the rete Malpighi.

Peritoneum.—A moderate amount of pigment is noted.

Micro-chemical Examination.—A large number of sections of each organ containing pigment were tested for the iron reaction. The methods used were the potassium ferrocyanide test followed by hydrochloric acid, and the ammonium sulphide method. The sections were treated by these reagents for varying lengths of time, but in no instance was an iron reaction obtained. The pigment retained its original color and no blue or greenish tinge appeared (absence of hemosiderine). The test for hemofuscin according to Buss was also made, but this likewise proved negative.

Diagnosis.—Hyaline struma with lime deposits; chronic tuberculosis and purulent infiltration of lungs; brown atrophy of heart; chronic interstitial and parenchymatous nephritis; atrophy and degeneration of pancreas; chronic congestion and fatty infiltration of liver; pigmentation of skin; irregularly distributed iron-free pigmentation of various organs.

The discussion of this unique case, the association of the exophthalmic goitre and the diabetes, the relation of the pigmentation to both of these conditions and its association with the whole subject of the hemochromatoses, will be considered in a paper which will be published later on in the *American Journal of Medical Sciences.*[1]

[1] See also H. W. Berg, N. Y. Med. Record, Dec. 16, 1899, p 818, with discussion on p. 911.

X.

A CASE OF RHEUMATOID ARTHRITIS ASSOCIATED WITH EXOPHTHALMIC GOITRE IN A GIRL SIXTEEN YEARS OLD.

By Morris Manges, M.D.,
ATTENDING PHYSICIAN.

(With one illustration.)

Jennie W., aged 16 years, born in United States. Admitted to Female Ward 3, October 16, 1899.

Family History.—Negative, except that grandmother had rheumatism. No syphilis.

Previous History.—Had measles. Three years ago had rheumatic pains in arms; later, knee, ankle, and hand joints also involved. These attacks were unaccompanied with fever or general disturbances. The attacks were temporary in duration and would recur at irregular intervals. The joints involved were enlarged and tender, without any inflammation. This would be followed by stiffness and soreness of the involved joints for a long time after. Since two years, the hand and foot joints, especially, have remained enlarged; then the knee joints enlarged and stiffened considerably. For the past years there has been considerable atrophy of the muscles around the involved joints, this being first noted in the hands. She has also occasionally had small, painful nodes about the involved joints and on the extensor muscles of the forearms. After a few days these would disappear. The hip, temporomaxillary, and vertebral joints have remained free.

About nine months ago, noticed a slight goitre and exophthalmos.

First menses two months ago.

Examination.—Patient is a tall, blonde girl, whose general condition is fairly good; anemic. Moderate exophthalmos (with Graefe's symptom, etc.) and goitre. Glands are all somewhat enlarged and hard. *Heart.*—Is slightly enlarged to the left; no murmurs. *Lungs.*—Negative. Pulse 110. Both *kidneys* are distinctly palpable; liver and spleen both palpable one inch below costal border.

Her gait is very stiff, the whole body being held rather rigidly and the knees flex with difficulty. The joint changes are especially marked in the phalangeal joints of the hands, feet, knees, and ankles. The surrounding muscles are atrophied to a varying degree, this being especially marked in the interosseous muscles of both hands. These changes are well shown in the accompanying photograph, which was taken by Dr. F. S. Mandlebaum. Subcutaneous nodules were found in the extensors of the right forearm. Electrical reactions of atrophied muscles, normal.

X-ray examination showed some periarticular condensation and sclerosis of outer lamina of the phalanges. There were no distortions or displacements.

Blood examination showed 80 per cent. hemoglobin, 4,600,000 red cells, and 7,000 white cells. *Urine.*—Negative; no indican.

During her two months' stay in the hospital there was always some fever, the fever being of an intermittent type and ranging between 100° and 101° at night. The pulse was always above 100, even when in bed; at times it would be

higher, running up to 130. Cardiac tonics did not reduce the rate.

Careful examinations of the urine as regards total excretions of urea, chlorides, phosphates, etc., failed to reveal any marked changes from the normal.

The treatment included cod liver oil, iodide of iron, phosphorus, thyroid gland, arsenic, etc. Hot-air baths and faradism improved the local conditions of the joints.

When she left the hospital her general condition was improved, but there was practically no change in the joints. She was under observation for six months after her discharge; at the end of this time there was practically no change in the joints, but the symptoms of the exophthalmic goitre were more pronounced, the goitre having increased somewhat in size. There was also some tremor.

These cases of rheumatoid arthritis in children can hardly be called very rare, yet the number of cases reported is small. The only statistics on their frequency are those of Brabazon,[1] who reported 100 cases of rheumatoid arthritis which came under treatment at Bath; of these three (3 per cent.) were between the ages of 5 and 15. Records of the cases thus far reported will be found in the papers by Koplik,[2] Still,[3] and Garrod.[4]

What lends particular interest to this case is the association of the rheumatoid arthritis with exophthalmic goitre. Working in an unrivalled place for the observation of all forms of rheumatic conditions (Bath, England), Spender concluded that there was a close etiological relation between rheumatoid arthritis, exophthalmic goitre, and locomotor ataxia, and in a very suggestive and thoughtful paper[5] he has brought forward many observations to prove the nervous origin and relation of these conditions. This close relation was also pointed out by Diamantberger.[6] The association of the two conditions in the present case, however, does not seem to be of this nature, and instead of being a hypothetical relation is an actual coexist-

[1] British Med. Jour., March 21, 1896.
[2] Arch. Pediatrics, 1896, p. 163.
[3] Allbutt's System, vol. iii., p. 107.
[4] Twentieth Century Practice, vol. ii., p. 552.
[5] British Med. Jour., May 30, 1891.
[6] Du rhumatisme noueux chez les enfants, Paris, 1891.

ence of the two. It is interesting to note that in the cases of rheumatoid arthritis which have been reported in children, tachycardia has been observed in some, a moderate goitre in others, as well as even tremor, neuralgic pains, and other symptoms which occur in exophthalmic goitre; yet in none of the cases thus far reported have there been more than one or two of these symptoms. In the present case the association of all these has justified the diagnosis of exophthalmic goitre in addition to the rheumatoid arthritis. So far as I have been able to learn, this case is unique in this respect. It is to be noted, however, that changes in the bones and joints are occasionally observed in exophthalmic goitre; yet Revilloid[1] states that changes in the fingers are especially remarkable.

Rheumatoid arthritis in children seems to be a different disease from that which occurs in adults. This is not true of all cases, but the difference can be shown in the majortiy of them, according to Still (loc. cit. p. 102). The latter has divided these cases into three groups, of which the most common is the one of which the present case is an example, and is probably infectious in origin. The next group in order of frequency appears to be clinically identical with the adult type of the disease. The third and rarest is an exceedingly chronic type of rheumatism proper which closely simulates either of these two groups.

It is not my purpose to enter into the clinical features of this case, since it agrees fully with the admirable picture of this type given by Still. I wish, however, to call attention to the features which indicate its infectious origin, *i. e.*, the intermittent fever, the enlarged glands, and the enlarged spleen and liver (for these viscera were palpable through enlargement and not displacement). It is to be regretted that cultures could not be obtained from the synovial fluid of some of the affected joints to corroborate the findings of Ballantyne,[2] Schueller,[3] and other observers who claim to have found characteristic diplococci in adults. Additional evidence in favor of an infectious origin is afforded by the fact that inflammation of the pleura and pericardium is common in the disease, for Still states

[1] Rev. méd. de la Suisse rom , xv., 8, p. 413.

[2] Lancet, April 25, 1896.

[3] Berl. klin. Woch., 1899.

that old adhesions were found in three cases which were examined post mortem, and in two other cases there were physical signs suggestive of adherent pericardium. Ballantyne also reports two adults who had pericarditis, one patient being 24 years old, the other 37.[1] It is remarkable that valvular disease does not occur.

[1] British Med. Jour., Jan. 15, 1898.

XI.

PNEUMONIA AND THE ACUTE HEMORRHAGIC DIATHESIS.

By N. E. Brill, A.M., M.D.,

ATTENDING PHYSICIAN.

Rapidly developing general extravasation of blood into the various organs and tissues occurs as an occasional symptom in many diseases of a widely different type. So diverse have been the pathological features of the diseases which have called forth this tendency of the blood elements to leave their containing vessels, that much confusion has arisen as to the classification of this symptom; thus, hemorrhages into the skin or mucous surfaces, or both, have been variously denominated *purpura hemorrhagica, morbus maculosus, scorbutus, hemophilia,* etc., whether they occurred independently or as a complication or sequel of some disease.

The underlying pathological process which occasions these hemorrhages must differ almost as widely as do the disease groups which call them forth. In the same way, the cause of the acute hemorrhagic diathesis—for such we prefer to call this tendency to extravasation of blood—in infectious diseases, such as small-pox, measles, scarlet fever, and typhus fever, most probably differs from that of pyemia, septicemia, and malignant endocarditis. Again, the pathological condition of the blood or of the vessel is presumably different when the underlying cause is a rheumatism or an arteriosclerosis or a poison like the iodides, ergot, quinine, or belladonna.

Thus far no classification of the causes of this acute hemorrhagic diathesis has satisfied the various conditions under which it obtains, owing chiefly to our lack of knowledge of the biochemical processes occurring under such conditions.

Sometimes the hemorrhages are due to a distinct bacteremia, at other times to a toxemia, both of which most probably induce some ultimate chemical change in the blood itself.

The object of this article is to add another case to those already reported in which the acute hemorrhagic diathesis occurred as an accompaniment of one of the infectious diseases. The clinical summary of the case is an acute lobar streptococcus pneumonia accompanied by an acute hemorrhagic diathesis, manifesting itself in rapidly developing general surface petechiæ and ecchymoses, hemorrhage into the affected lung, tremendous epistaxis, hematemesis, melena, hematuria—in fact all the signs of a *purpura fulminans*, and which proved fatal four days after the first appearance of the disordered blood state.

The patient, Martin B., was admitted to my service at the hospital on February 20, 1900. He was born in Germany; was 42 years old and a clerk by occupation. His family history showed nothing noteworthy. There were no bleeders in any branch of his family.

Previous to this illness he had an attack of measles in childhood, malarial fever in 1875, and gonorrhea a number of times, the last infection having been acquired ten years ago. He never had syphilis, was abstemious as to drink, but smoked excessively. Every winter he had an attack of bronchitis.

The *present illness* began with a chill eight days before entering the hospital; this was followed quickly by a decided fever. Cough soon supervened, and pain in the right chest when he coughed. There was neither prodromal headache nor malaise. The patient stated that he started to cough from the beginning of his illness and that he soon began to expectorate, but that the sputum was not bloody or even blood-tinged. He did not vomit. His bowels had been constipated.

Two days before admission (six days after his illness began) he had a severe epistaxis, which has persisted. Though he had fever throughout, he did not take to his bed. On the day of his epistaxis he noticed small, bluish-red spots on his arms and legs. He complained of thirst and of a very dry skin.

The objective examination revealed a man of moderate stature, fairly well nourished, but of no large adiposity. The face was flushed, the skin over both the malar prominences being of a mahogany red in color, contrasting with the white color of the rest of his face. He had an anxious look. His moustache con-

tained remnants of clotted blood. His general appearance suggested a very grave form of illness.

The skin immediately below the right clavicle showed three petechial spots. Petechiæ in large numbers, but very small, were distributed over the lower anterior surfaces of both legs immediately above the ankles. A few were scattered over the extensor surfaces of the forearm.

The physical examination of the chest of the patient showed labored and increased respiratory movements, an area of dulness over the upper lobe of the right lung, very well marked in front and behind, fine crepitant râles, bronchial breathing and bronchial voice sounds over this area. The other portion of the right lung gave a hyper-resonant percussion note, exaggerated respiratory murmur, and large coarse râles.

The heart showed nothing abnormal as to position, size, location of apex beat, nor were there any cardiac murmurs The second pulmonic sound was somewhat exaggerated. There were no indications of cardiac disease.

The examination of the abdomen revealed nothing abnormal. The spleen could not be felt.

During the day the temperature of his body rose to 104° F., and toward evening a profuse epistaxis occurred which necessitated the plugging of both the posterior and the anterior nares. A rhinoscopic examination had revealed intensely red nasal mucous membranes, with a general oozing of blood coming from all parts of their entire surfaces. During the first twelve hours in the hospital but twelve ounces of urine were passed. The urine contained no blood.

On my visit to the wards the next day I found the general condition of the patient very poor. He had been drowsy, but sleepless, the entire night, during which, notwithstanding the local treatment to the nose, with an antipyrin spray to its mucous surfaces before plugging, the blood continued to ooze through the plugs like oil from the wick. Immediately preceding my visit the patient began to expectorate with coughing large quantities of blood, frothy and bright red.

To-day's, February 21, examination revealed the patient's general condition to be very grave. The petechiæ have increased in number and are now generally distributed over the entire body, including the face. There are subconjunctival ecchymoses, as well as ecchymotic spots on the skin of back, buttocks, right thigh, and both heels. The exterior surface of the chest, from the clavicles down, is irregularly studded with purpuric spots of varying size from 2 mm. to 1 cm. The ecchymoses were nowhere larger than a trifle over 1 cm.

The physical examination revealed an increase in the consoli-

dation, the entire right lung being now involved. The heart sounds were much feebler than yesterday. The spleen cannot be felt.

The fecal movements, three in number, were all large and contained much blood. The urine was red in color and contained a considerable amount of blood and albumin, but no casts.

A blood culture was made in the usual manner and the subsequent report of the pathologist showed the blood to be entirely free from any bacteria.

The examination of the fresh blood showed pale red corpuscles, moderate poikilocytosis; the contained hemoglobin was 44 per cent. (Gower's instrument), erythrocytes 3,281,250, and leucocytes 7,000. *It took twenty-four minutes and thirty seconds for the blood to clot.*

The examination of the sputum showed the presence of a very large number of streptococci with but few diplococci

The patient's temperature ranged, on this day, from 103° F. to 104° F., his pulse from 104 to 128, and his respirations from 28 to 34.

During the night his condition became worse. A hypodermatoclysis and an intravenous infusion of two pints of a 1 per cent. solution of gelatin were given, in the hope that the hemorrhages would be controlled. A large hematemesis shortly followed, as well as the evacuation of a large amount of blood from the bowels; the pulse became imperceptible, and after a very sudden, quick agony, the lethal exitus occurred at 2 A.M., February 22, 1900.

The clinical diagnosis was an acute lobar pneumonia involving the upper lobe of the right lung, hemorrhage into the lower lobe of the right lung as an accompaniment of an acute hemorrhagic diathesis.

The question arose in my mind whether the signs of the consolidation in the upper lobe of the right lung were not due to an intravisceral hemorrhage rather than to a pneumonic process. The fact that the symptoms of the lung involvement—namely, the chill, the pain in the chest, the cough, etc.—preceded the petechiæ and the other hemorrhages, led me to regard the consolidation as the result of a pneumonia. This assumption was strengthened by the developments of the next twenty-four hours, when the sudden appearance of hemoptysis and a consolidation of the lower lobe of the affected lung, which had presented signs on admission of compensatory em-

physema, led to the diagnosis of a hemorrhage into the area of lung tissue not involved by the pneumonia.

The autopsy was held ten hours after death. The head was not permitted to be opened.

There was marked rigor mortis. The skin was covered with petechiæ and ecchymoses, as described in the history. Where the gelatin hypodermatoclysis was made on the left side of the thoracic wall, there was a large subcutaneous hemorrhage.

The inguinal glands were slightly enlarged; the anterior mediastinal glands were also large and hemorrhagic.

Heart.—The pericardial fluid was increased. There were a number of small petechiæ on the walls of the heart, especially over the auricles and in the parietal pericardium. The right auricle and ventricle were moderately dilated, the tricuspid valve hemorrhagic. The heart muscle was pale. The pulmonary valves and the wall of the pulmonary artery were reddish, due, most probably, to postmortem imbibition. The left ventricle was moderately dilated and showed anemia and parenchymatous degeneration of its walls. The mitral valves were hemorrhagic. The aortic walls and pulmonary valves were red. There was slight atheroma of the aorta and the coronary arteries.

Lungs.—The left pleural sac contained a small amount of bloody fluid. There were a few adhesions to the surface of the lower lobe. The left lung was edematous and markedly congested. The bronchial glands were slightly enlarged and anthracotic.

The right lung was firmly bound down by adhesions. There were hemorrhages into the right parietal pleura. A complete consolidation of the upper lobe was noted, showing the stage of gray hepatization, with some red. The lowest lobe was the seat of a large blood extravasation, dark red in color, and about the hemorrhagic portion was an area of gray hepatization.

Spleen.—This organ was enlarged (it could not be felt on palpation during life) and presented a few pin-point hemorrhages. It was flabby, its pulp soft, and its cut section somewhat pale.

Kidneys.—The capsule of the left kidney was not adherent. The surface was pale, as was the cut section. The medulla was yellowish and there was blood in the renal pelvis. The right kidney showed identical changes to those in the left. The markings were very indistinct and the medulla very yellow.

Adrenals.—These showed no pathological changes.

Pancreas.—This organ was pale and firm.

Liver.—A few petechiæ were spread over its surface. The liver was pale, slightly enlarged, and presented the features of moderate fatty degeneration. The gall bladder and the ducts were normal.

Stomach and Intestines.—The mesentery showed a few small hemorrhages and the mesenteric glands were slightly enlarged. A few small hemorrhages were scattered through the stomach mucosa. Under the mucosa of the duodenum was an accumulation of gas, dispersed in varying sized blebs which elevated the mucous membrane to a considerable degree. The same condition was present in the gastric mucosa, as well as in that of the lowest part of the jejunum. There were a number of hemorrhages also in the lower part of the ileum. When the blebs were punctured, the gas escaped and the elevated mucosa descended to nearly its normal position. The colon, especially the descending division, was studded with many small hemorrhages. The sigmoid flexure and the rectum presented marked reddish discoloration of their walls, while the upper part of the rectum showed acute catarrhal inflammation and hemorrhages.

Bacteriological Examination.—Spreads were made from the various organs and examined microscopically. Those from the *right upper lobe of the lung* showed streptococci and a few bacilli aerogenes capsulati; from the *right lower lobe* the same were found. The spleen showed no bacteria. The duodenum was invaded by the bacillus aerogenes capsulatus, as were likewise the jejunum and ileum.

Cultures were made from the *blood* of the spleen. They developed the streptococcus conglomeratus. These were also developed from the duodenum, as were the bacilli aerogenes capsulati. The result of cultures from the jejunum was identical with those from the duodenum.

The gas-producing bacillus (bacillus aerogenes capsulatus) possessed all the morphological and cultural characteristics described by Welch and Nuttall.

The *microscopical examination of the lung* showed consolidation (stage of purulent infiltration), hemorrhage, and edema.

I am indebted to the pathologists, Drs Mandlebaum and Libman, for the reports of the bacteriological and pathological examinations.

General Remarks.—The interesting features of this case are the rapidly developing hemorrhagic diathesis, which was the cause of death, the leukopenia or diminished leucocytosis, and the presence in the intestinal tract of the bacillus aerogenes capsulatus.

The causative factor in the production of the hemorrhagic diathesis cannot be determined in all of the conditions under which it occurs. These can only be classified, as far as our knowledge permits, tentatively. Thus the acute hemorrhagic diathesis may be:

1. The accompaniment of many of the infectious diseases, some of which are due to specific bacterial invasion, some to an infectious toxemia, and some to a *probable* bacteremia, although this condition cannot be proven by the present cultural means at our disposal.

Under the first subdivision we may mention epidemic cerebro-spinal meningitis, malignant endocarditis, pyemia, septicemia, pneumonia, influenza, Weil's disease; under the second and third, measles, scarlet fever, small-pox, typhus fever, some of the cases of infectious icterus, yellow fever, and syphilis.

2. It may be due to defective or perverted metabolism and to disturbed nutrition from some constitutional disease, such as rheumatism, carcinomatosis, sarcomatosis, leukemia, Hodgkin's disease, arteriosclerosis, nephritis, senility, tuberculosis, hypertrophic cirrhosis of the liver. In children it occurs occasionally from poor nutrition, due to insufficient or defective breast or other milk.

3. It may be the result of certain poisons, under which we will enumerate snake poison, iodine, ergot, mercury, phosphorus, belladonna, quinine, copaiba, lead, ammonium muriate.

4. It occurs with certain organic and functional nervous diseases, as tabes dorsalis, acute and transverse myelitis, hysteria.

This classification presupposes that all conditions in which certain elements of the blood leave the vessels in which it is contained are included under the term hemorrhagic diathesis. The term applies as well to purpura simplex, to hemophilia, as well as to intermediary and connecting links, and in this respect approaches the position held by W. Koch, who includes under the term of hemorrhagic diathesis all hemorrhagic conditions excepting the infectious purpura.

In our case it was the accompaniment of a streptococcus pneumonia. Leichtenstern mentions three cases occurring with influenza and the pneumonia sometimes accompanying

this disease. It would be difficult, under such conditions, to say whether the influenza or the grippe pneumonia (usually a broncho-pneumonia or a streptococcus pneumonia) was the causative factor in his cases. The few diplococci found in the sputum in our case may have come from the mouth, as the spread from the pulmonary alveolar contents, made post mortem, showed the streptococcus aureus and not the pneumonia diplococcus, and the blood during life showed no bacterial invasion.

There can be no doubt of the extreme rarity of an acute hemorrhagic diathesis occurring with and during the course of a lobar pneumonia. The reported cases are very few, the most of them occurring as a sequela rather than as an accompaniment of this disease. They are, in addition to those mentioned by Leichtenstern (he does not say whether they occurred with a broncho- or lobar pneumonia in those influenza cases, or before the advent of the pneumonia or afterward), thirteen in number and have been reported by Bhattachargee,[1] Dillard,[2] Dubois,[3] Stilwell,[4] Nefe,[5] Fuchs,[6] Netter,[7] Hutinell,[8] Voituriez,[9] Bonome,[10] Snow,[11] Mouton,[12] and Bernhardt.[13] Snow's case seems to have been one of hemorrhage into the lung, since there was no evidence of a pneumonia during life, and on death the upper lobe of the right lung showed a "deep red carnification mottled with gray" (probably due to blood extravasation).

Dubois' case was one of hemophilia in which pneumonia developed.

Bernhardt's case showed on postmortem a broncho-pneumonia, not a lobar pneumonia. Mouton's case was also one of broncho-pneumonia.

The cases of Dillard, Stilwell, and Nefe occurred after convalescence from a pneumonia.

There are left, therefore, of the pure cases, that is, of the cases of the hemorrhagic diathesis occurring during the course of a lobar pneumonia, five in addition to the one I report, namely, the cases of Bhattachargee, Fuchs, Hutinell, Voituriez, and Bonome. Hutinell's case was complicated with a meningitis and endocarditis and was probably a purpura due to a bacteremia.

We may conclude, from the rarity of this condition with lobar pneumonia, that the pneumonia-producing organisms or their toxins seldom materially vitiate the integrity of the blood or disturb the cellular elements of the walls of the blood vessels.

A markedly increased number of the leucocytes of the blood is one of the features of an ordinary lobar pneumonia. Clinicians have come to look upon those cases in which there is a diminished number of these corpuscular elements with gravity, since it has been noted that cases occurring with such a condition have been very often fatal. This case is but another of the vast number to support the view that the condition of the blood at times may serve to some extent as a prognostic sign of importance.

The presence of the bacillus aerogenes capsulatus in our case must be regarded as either a terminal or even a postmortem occurrence. The case of Bernhardt showed, likewise, an invasion with a gas-producing bacillus, though no cultural or experimental tests were made. Terminal and postmortem invasions of the tissues by the bacillus aerogenes capsulatus have been noted by Flexner.[14] It is a widely distributed bacillus, occurring not infrequently in the human body under pathological conditions, and is not an infrequent inhabitant of the alimentary tract.

The conclusions to be drawn from a review of this paper are:

First, the hemorrhagic diathesis is a rare accompaniment of lobar pneumonia in man.

Secondly, it occurs more often with the streptococcus than with the pneumococcus invasion of the lung.

Thirdly, it manifests itself more frequently after the decline of the pneumonia than during the course of the disease.

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XII.

SYSTEMIC PYOCYANEUS INFECTION.

A CRITICAL VIEW OF THE RECORDED CASES, WITH THE REPORT OF A CASE SECONDARY TO A STAPHYLOCOCCEMIA.

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A number of instances of systemic invasion by the bacillus pyocyaneus have been reported in the last few years, and quite an extensive literature has accumulated on the subject. It is unnecessary here to detail the entire literature, as it is so completely given in many of the recent articles. The case which forms the basis of this paper is an instance of a general invasion by the bacillus pyocyaneus secondary to one by the staphylococcus aureus. Before giving the details of this case it may be advisable to give a sketch of what is known of the clinical course of pyocyaneus infections in general in man. This is well summed up by Lartigau, in his recent article, part of which we shall abstract.

"The clinical evolution of the infection in man resembles in a general manner the other better known forms of septicemia and some of the acute febrile diseases. The general symptoms at the onset are those of an infectious disease—weakness, prostration, and fever. The temperature is usually high; it does not run a characteristic course. Occasionally there is pulmonary disturbance, sometimes broncho-pneumonia and pleurisy. Epistaxis has been observed, and tympanites is present, as a

rule. The spleen is enlarged; the urine sometimes contains small amounts of albumin. Intestinal disturbances occur with great frequency, especially in the form of a diarrhea which shows nothing characteristic except that, at times, the movements are more or less greenish and occasionally blood-stained. The acute enteritis may come on quickly after the onset of the disease, and persist until death, or it may disappear. In other cases it appears much later in the disease. Vomiting is frequent, and the vomited matter is sometimes bloody. Cutaneous manifestations are very frequent, and appear in the form of either bullous eruptions or petechiæ and more rarely as a papular rash. The eruption generally appears on the trunk, limbs, and scrotum, and the time of its appearance is variable, in some cases being late and in others early. Death occurs in forty-eight hours to four or five days, in a few cases later.

"The postmortem examination shows vasomotor disturbances, focal necroses, hemorrhages, lesions of the parenchyma, of the heart, liver, spleen, and kidneys. Intestinal lesions are common, and show a predilection for the small intestine. There may be superficial necrosis, diffused or circumscribed. Ulcers form in the less acute cases, but rarely involve more than the mucous membrane. There may be an acute hemorrhagic enteritis."

Charrin, in his first communication, in 1889, on experimental work on animals with the bacillus pyocyaneus, found that rabbits were more susceptible than guinea-pigs, doves, or frogs. In rabbits he distinguished four types of cases—the hyperacute, lasting twenty-four hours; the acute, two to four days; the subacute cases lasted one to three weeks, and the chronic several months. The symptoms were malaise, somnolency, convulsions, fever, diarrhea, and albuminuria. In the chronic cases there was much loss in weight. After five days to two months the animals developed marked spastic paralysis, especially of the hind legs. The bacilli could be recovered from the bloody stools and the urine. Pathologically there were found an enteritis, hemorrhages in the stomach and cecum, infarctions and amyloid degeneration, occasionally contracted kidneys, and hypertrophy of the heart. All these changes except the infarcts could be produced by the intravenous injection of

the culture-products, and immunity could be obtained in the same way.

The nervous symptoms described by Charrin in animals have not been noted particularly in man, except in one case reported by Jadkewitsch. This man had a chronic eczema of both legs. During ten years, at three different times, there developed suppurating ulcers, which always discharged blue pus. On each of these occasions nervous symptoms developed. The first time the suppuration lasted three months, and there developed paralysis and anesthesia of the right arm. Five years later it lasted three weeks, and again nervous symptoms appeared which persisted for four months. After three years it returned and again lasted four months; the patient then suffered from diarrhea, paralysis of both legs, and sensory disturbances, which spread to the scrotum, penis, and the gluteal and anal regions. The urine at that time showed pyocyaneus bacilli.

The history of our case is as follows:

W. K., aged twenty-three years, newsdealer, admitted to the Mt. Sinai Hospital July 6, 1898.

Family History.—Father died of tuberculosis; brothers and sisters are healthy.

Previous History.—Has slight alcoholic habit; no tobacco habit. Two years ago he went to a dispensary for headache, and was told that he had kidney disease. Since then he has not had headache nor any other symptoms.

Present History.—He has been ill for two weeks and confined to bed for the past eight days. He first suffered from headache, nausea, and constipation, which increased in severity. The nausea has become quite constant, but there is no vomiting. He has had constant fever without chills. The prostration has grown very marked. He has had indefinite pains over the heart region and in the extremities, and says that he has been getting jaundiced for the past three weeks. The stools have been yellowish and generally fluid. There has been no pain, except over the left chest. He has no sweating; there is no cardiac palpitation. His urine is dark colored, and he passes increased quantities.

Physical Examination.—Muscular development is poor, and there is little adipose tissue. Skin icteric and moist. Pulse 100; arteries tortuous and sclerotic, their tension not increased. Physical examination: Lungs negative. Cardiac dulness ex-

tends from the left border of the sternum to one inch to the right of the nipple line. Auscultation negative. Liver not enlarged. There is tenderness along the free border. The spleen is obscured by tympanites. Respiration 24, pulse 100, temperature 100° to 100.2°.

July 7: Urine acid, 1010; no albumin; no sugar. Temperature 100.8° to 102.5°. Examination of the blood shows no leucocytosis.

July 8 to 12: The temperature ranged between 98.6° and 104.5°. On the latter date one of the veins in the left arm was aspirated and 5 c.c. of blood used for making cultures on agar and bouillon.

July 13: Temperature 99°. The jaundice is less marked and the abdominal pain has disappeared. The stools continue to be irregular, yellow or clay-colored.

July 14: Temperature 98.4° to 101°. The blood cultures show a staphylococcus which, after a few days, develops a slightly golden color.

July 15: Temperature 99° to 102°. The jaundice has almost entirely disappeared.

July 17: Temperature 98.6° to 100°.

July 18: Patient allowed to be up out of bed. Temperature the same.

July 19 and 20: Temperature the same. Patient complains of pain in the lower part of the left thigh, on the outer side, and examination reveals a point of tenderness in the lower part of the left vastus externus muscle. The muscle feels tense in that area.

From the 21st to the 26th the temperature varied from 98.4° to 103°. The pulse rose to 120. Examination of the blood shows white blood cells, 5,625; red blood cells, 900,000; hemoglobin, 20 per cent.

July 30: Pulse 130. A distinct tender swelling, about 4 cm. in diameter, can be felt in the left vastus externus muscle. An examination of the blood shows a marked diminution in the number of the red blood corpuscles, with a high hemoglobin coefficient. There is great variation in the size and shape of the red cells, there being numerous megalocytes and microcytes. No nucleated reds can be found. The white blood cells are not increased in number.

July 31: Temperature 99.5° to 103°. Patient kept in bed. The cervical, axillary, and inguinal glands are enlarged, and there is considerable edema about the eyes. There is tenderness of the sternum.

August 2: Temperature the same; jaundice more marked. Vomited a quantity of light yellow fluid twice. Spleen enlarged to percussion; not palpable.

August 3: Temperature 100° to 106.6°, pulse 140, respiration 40.

August 4: Temperature 103° to 104°; frequent vomiting.

August 5: Jaundice increasing. Temperature 107°, respiration 45, pulse 155. Vomited several times. Had a chill at 9 A. M., one at 3.30 P. M., and one at midnight. Scattered over the body are numerous small areas of blackish-brown pigment, especially on the face, neck, arms, and legs. They vary in size from a pin-point to three-sixteenths of an inch in diameter. There are none on the mucous membrane. The liver is enlarged and tender. The first heart-sound is very loud, the second sound poor. In the morning a blood culture was made, using 6 c.c. of blood. In eight hours there was a profuse growth of the bacillus pyocyaneus. In the afternoon the patient was seized with tonic convulsions, with staring, glassy eyes. The attack lasted about two minutes, and after that the body was rigid.

August 6: Chill at 6 A.M., lasting ten minutes. Later the pulse became very weak, and there was some twitching of the limbs and body. He was quite rigid at intervals. The pulse rapidly became imperceptible, and the patient ceased breathing at 9 A.M., the temperature being 103.5°.

Postmortem Examination.—Made five hours after death. Mucous membranes very pale, with yellowish tint. Sclerotics yellowish. Small patches of black pigment on various parts of the body. General glandular enlargement.

Heart.—Muscle fatty; left ventricle dilated; the mitral valves show some thickening of the free edge of the flaps (relative insufficiency). *Lungs.*—Negative. *Spleen.*—Very large; some fresh fibrin on surface; color grayish; numerous hemorrhagic spots the size of a pin-head. *Liver.*—Very large, congested, soft; shows irregular, yellow markings, especially in the form of rings, around the vessels. *Kidneys.*—Congested; capsules not adherent; on cut section are firm, somewhat granular, markings indistinct. *Adrenals.*—Small; medulla looks whitish.

In the left vastus externus muscle is a small abscess, about 4 cm. in diameter, containing yellowish pus and surrounded by hard, infiltrated muscle tissue. The other organs could not be examined.

Microscopical Examination.—The liver shows intense, acute degenerative changes, with necrosis in spots; marked yellowish and brownish pigmentation. In many places the tissue cannot be recognized at all. The interstitial connective tissue is increased in amount, and there is a marked recent proliferation of round cells. The vessels are dilated, and in their walls are

myriads of bacilli, which are also found packing the capillaries and lying in veritable colonies in the necrosed tissue. Some parts show a more marked invasion. *Spleen.*—Capsule thickened; connective tissue increased. There is very intense degeneration and necrosis, and marked yellowish-brown pigmentation, especially of the more degenerated tissue. Scattered throughout the spleen are very many bacilli, which in some places are gathered in large numbers. *Kidneys.*—The cells of the tubules are swollen and granular; some are desquamated, and there is much granular material in the lumen. The capillaries of the Malpighian bodies are dilated, and the cells lining Bowman's membrane are swollen and the cells over the capillaries increased in number. The connective tissue is increased in amount and looks edematous. There is a fairly large number of bacilli present in the interstitial tissue. *Adrenals.*—Show intense acute degeneration, especially in the medulla; many of the cells show vacuoles; in some only an indistinct nucleus can be seen, in others it has disappeared. The vastus externus muscle shows typical changes of abscess formation.

Bacteriological Examination.—Cultures from the liver, spleen, and kidneys showed a very marked growth of the bacillus pyocyaneus. Cultures from the abscess in the vastus externus muscle gave a growth of staphylococcus aureus.

Postmortem Diagnosis.—Parenchymatous degeneration and necrosis of the liver and spleen; chronic interstitial nephritis; acute nephritis and degenerative atrophy of the adrenal bodies. Metastatic staphylococcus abscess of vastus externus muscle; general pyocyaneus infection.

Summary of Case.—As narrated above, the patient was sick six weeks, for four weeks of which time he was in the hospital. He came in with jaundice, irregular fever, and prostration, and presented the picture of an infectious icterus. A diagnosis of septicemia was made (with unknown portal of infection), and the blood culture, revealing the staphylococcus aureus, confirmed this view. After two weeks the jaundice had entirely disappeared, the temperature approached normal, and the patient was so much improved that he was allowed to be up. At this time his skin was of a pale lemon color, and he presented the clinical picture of a pernicious anemia. The blood examination corroborated this. It is of interest to note the absence of any leucocytosis, although the anemia was a secondary one.

Then the patient developed symptoms of a metastatic abscess in the vastus externus muscle, and the temperature rose somewhat. Later the jaundice and other symptoms returned, and the fever became very high and the liver enlarged. A blood culture now revealed the bacillus pyocyaneus, the rapid growth pointing to a marked infection. The temperature then rose very high, and the patient died with marked nervous symptoms. The cultures made at the autopsy from the abscess showed staphylococcus aureus, confirming the first culture, made *intra vitam*, and the organs all showed the bacillus pyocyaneus in enormous numbers. In short, then, we had before us a case of staphylococcemia, with a single metastasis in a muscle—by itself a very unusual occurrence. This was then followed by the pyocyaneus invasion. The point of entry is unknown. Had a more complete autopsy been permitted it is of course possible that one might have been found. Undoubtedly the chronic nephritis predisposed the patient to bacterial invasions, and the case as a whole may in a way be considered as possibly belonging in the class of terminal infections. There are several points in connection with the case worthy of further note.

1. The great value of the blood culture in deciding the diagnosis. The case at first resembled those which have been described as due to infections by the bacillus proteus fluorescens (Weil's disease), and it is evident how important it is in these cases of infectious jaundice to examine for the infecting organism. Without the blood culture we should have been in the dark as to the diagnosis until the muscle abscess made its appearance.

2. The enormous number of bacilli in the liver and spleen, and the very marked changes found in connection with them, allow us to exclude the possibility of there having been a mere agonal invasion. We are inclined to believe that the pyocyaneus invasion occurred at least several, probably six, days ante mortem, when the temperature became high for the second time.

3. The pigmentation of the skin is of special interest. Various eruptions have been described in connection with infections by the bacillus pyocyaneus, mostly bullous, papular, and

hemorrhagic. Our case is the first in which pigmentation such as is found in Addison's disease has been met with. We are not inclined to believe that this is due to the bacillus pyocyaneus *per se*, but to the effects of its toxins (and those of the staphylococcus) in causing the degenerative atrophy of the adrenal bodies. Such a change has been met with in connection with typical Addison's disease. Thus, Neusser[1] says: "In a large number of cases simple or inflammatory atrophy of the adrenal bodies has been advanced as the cause of Addison's disease."

4. A careful consideration of the reported cases of systemic pyocyaneus infections and of our case must bring up the question whether these infections are ever primary. This is a question which is very difficult of solution. A very large number of the cases reported occurred secondarily to, or at the same time with, an infection by other bacteria, or toward the end of some chronic disease. It is possible that many of the cases which are recorded as pure infections were not such, and that they followed an infection by some other micro-organism, which was then overgrown or displaced. This is especially probable, as in practically all the reported cases the bacteriological examination was first made late in the disease or at the postmortem examination.

5. If we look over the literature up to date we find that all the cases in which the bacillus pyocyaneus has been found can be arranged in three classes.

A. *Those in which the bacillus was found during life or post mortem in the gastro-intestinal canal, or in abscesses or exudates having a direct or indirect communication with the open air.* These cases are very numerous; thus, it has been found in skin eruptions, fistula in ano, in the discharge of otitis media cases, in the urine, in dysentery, in chronic mastitis, in abscesses of the ovaries, etc. In these cases the infection occurred from outside the body.

B. *Those in which it was found during life in abscesses or exudates not in direct communication with the open air.* These cases are the following: Ernst isolated a variety of pyocy-

[1] Erkrankungen der Nebennieren, 1897, p. 33.

aneus from an exudate in the pericardium by tapping; the tubercle bacillus was also present. (The significance of this observation is somewhat lessened, as the fluid which was examined was removed at a second tapping done seven days after the original aspiration.)

Schürmayer found the bacilli in the exudate in a bursa in front of a knee joint. The fluid was light yellowish in color; there was no constitutional reaction.

In this second class of cases we must think of the possibility of an infection by way of the blood or lymphatics.

C. *Those in which there is claimed to have been an undoubted general invasion by the bacillus, or, in other words, a pyocyaneus bacillemia.* Many of the cases reported in this group are doubtful, as the bacteriological reports were made from postmortem work. It has been repeatedly brought out of late years (particularly by Chvostek and Egger) how careful we must be to give the correct significance to the postmortem invasions of bacteria, especially of such motile bacteria as the colon bacillus and the bacillus pyocyaneus. As Fischl well puts it: "The only way in which we can find out whether the postmortem findings mean anything or not is to examine the organs microscopically and see if we can find a direct relation between the bacteria present in them and the changes in the tissue, so that we can judge of the age of the pathological changes and the way in which they originated." The only cases of supposed generalized pyocyaneus infections which we can accept as positive, therefore, are those in which the bacilli were found in the blood during life, or where they were found in numbers in the organs post mortem, and seemed to stand in causative relation to the changes in those organs. Furthermore, much depends on the methods of making the blood culture. Canon, Petruschky, Stittmann, and Kühnau have shown the unreliability of cultures made from blood taken from the fingers or toes. Kühnau says the skin must be incised and the vein opened, but according to our experience it is enough to disinfect the skin thoroughly and aspirate the blood from the veins.

Few of the reported cases stand the test when judged by these criteria. Up to 1893 no case was recorded which abso-

lutely proved the possibility of a systemic invasion by the bacillus pyocyaneus. This led Schimmelbusch to declare that although the bacillus pyocyaneus could cause local infections and resulting toxemic conditions, it could not invade the organism. Of a large number of cases reported since then only the following can be considered as at all convincing.

1. One of the two cases reported by Williams and Kenneth Cameron was in a child aged seven months. In this case no culture was made from the blood during life, but after death the capillaries of the liver, kidneys, and spleen were found blocked with minute bacilli, which cultures proved to be pyocyaneus. The organs showed parenchymatous degeneration. The autopsy was made very shortly after death.

2. Finkelstein, in a child aged three months, with a hemorrhagic diathesis, made a blood culture from a vein two days ante mortem, using 1 c. c. of blood. This showed bacillus pyocyaneus and the colon bacillus.

The same was found in the stools and, one-half hour post mortem, in cultures from the blood aspirated from the heart. This is the first case in which the bacilli were found in the blood by means of culture during life, and therefore really the first undoubted case of pyocyaneus bacillemia.

3. Blum's case: Luetic child, aged two and one-half months. In this case, on the day before death, some blood was taken from the ear and examined microscopically. It was found to contain numerous bacilli resembling pyocyaneus, and the same were found microscopically and by culture in blood obtained from the heart one and one-half hours post mortem. In the spleen and liver the bacilli were found in large numbers. In the kidneys but few were seen, although cultures showed a good growth. On the day before the infant died there developed a systolic murmur at the apex of the heart, and post mortem there were found fine nodules at the free edges of the flaps of the mitral valve, and in these nodules and in the valve proper bacilli were found. By perforating the aortic flaps in a rabbit through the carotid artery and injecting, one hour later, a half cubic centimetre of a twenty-four-hour bouillon culture intravenously, Blum succeeded in producing an endocarditis. Around a hole in the valve the edges were thickened and thrombi were

attached. Microscopically there was found a growth of round cells, with bacilli present. Cultures of the heart-blood showed the bacillus pyocyaneus.[1]

4. The case of Czerny and Moser can probably be included in this group. In a child seven days old, by making cultures from the blood of the finger-tip, they found the bacillus coli communis on one day and the bacillus pyocyaneus the next day. A large number of control experiments was made which seemed to show the reliability of the result, although, as pointed out above, such cultures are not to be considered trustworthy.

5. Our case is the second in which the pyocyaneus bacillus was found in the blood during life in such a way as to exclude all doubts. This is the first case in which this finding has been made in the adult, and clearly, therefore, contradicts the view that has been held by some that systemic invasion of the bacillus pyocyaneus is limited to very early life.

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[1] Although we are inclined to include this case among the undoubted ones, we should like to draw attention here to a fallacy in connection with staining blood specimens for bacteria. We have found, even in concentrated watery solutions of methylene blue and gentian violet, bacilli which resemble the pyocyaneus bacilli, but are somewhat shorter and thicker. If specimens of blood are stained with such solutions the bacilli adhere to the cover glass even after thorough washing, and the impression might be obtained that there was a marked bacteremia. We believe, therefore, that when the reports are made of the presence of bacteria in the blood by staining methods, it should always be stated whether the staining fluid was first microscopically examined and found free from bacteria or not; otherwise such observations may be misleading.

XIII.

A CONTRIBUTION TO THE SUBJECTS OF CHRONIC INTERSTITIAL NEPHRITIS AND ARTERITIS IN THE YOUNG, AND FAMILY NEPHRITIS; WITH A NOTE ON CALCIFICATION IN THE LIVER.*

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Chronic nephritis in children and adolescents is a condition which has been much overlooked. Especially is this true of the chronic interstitial type (contracted kidney). Dickinson was of the opinion that the latter condition was not infrequent in children. Huebner,[1] who has lately written a monograph upon this subject, from which many of these introductory remarks are cited, states that of 251 cases of chronic nephritis which he observed in Leipsic, 214 occurred in adults and 37 in children. Later, in Berlin, he saw 28 cases in children, mostly after scarlet fever. Of these 65 cases, there were 3 of parenchymatous nephritis, 4 of contracted kidney, and 5 of chronic hemorrhagic nephritis (Wagner). Of 33 cases of chronic interstitial nephritis observed by Bartels,[2] one occurred at the age of 18, one at 19, and two at 20. Of Dickinson's[3] 308 cases, one occurred between 11 and 20 years, and 24 between 21 and 30 years.

From these figures it is seen that under the age of 20, chronic

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interstitial nephritis is uncommon, but not so rare as the omission of reference to it in many text-books on children's diseases would indicate. The condition is even more frequent than these figures would lead us to infer, as many of the cases are overlooked and treated for anemia for a long time. This is especially true of the subacute cases of productive nephritis described by Delafield.[4]

Of the interstitial cases, which alone interest us here, Heubner states that there are but thirty on record in which postmortem examinations were made. Besides these, there are numerous other instances reported in which the patients were not observed until the fatal termination, or where no autopsy was performed. To these cases Heubner adds four from his own experience; three in males, aged respectively 14, 9, and 24, and one in a female aged 11. Of these four cases, however, one was probably of amyloid disease. In none of these cases is there any postmortem examination recorded. In all the cases which Heubner cites the disease was very insidious, but was easily discovered upon properly examining the patients. As a rule the disease lasted for many years. It can, however, be rapid in its course, as in Crooke's[5] case, where, at the autopsy on a boy 9 years old, who died on the sixty-eighth day after the onset of scarlet fever with diphtheria, the kidneys were found to be distinctly granular. Delafield[4] has drawn especial attention to these rapid cases (acute productive nephritis).

According to Heubner, there are seven cases in the literature in which there is no history of a previous acute attack, so that they can be looked upon as instances of primarily contracted kidneys. These are the cases of Barlow,[6] Bull,[7] Filatoff,[8] Morell-Lavalée,[9] Oppenheim,[10] and Förster[11] (two cases). The case reported by Morell-Lavalée is of a special type, as the condition was complicated by a cirrhotic liver. In the other cases, which died at the ages of 5, 6, 10, 13, and 14 years respectively, it is noted that the children were always weak, of capricious appetite, pale, and had weak resisting powers.

Accidentally, or at the occurrence of a slight edema, the albumin in the urine was discovered. It is, of course, possible, as Heubner states, that these children had had an attack of acute nephritis in earliest infancy or childhood, so that the question

of the occurrence of a primarily contracted kidney in children must remain an open one. Of the four cases which Heubner has seen, one is probably a case of amyloid kidney, as stated above, and two are probably secondary cases. Only one is possibly a primary case. This is that of a boy aged 9 years, who presented typical symptoms of chronic interstitial nephritis, but of whose history only a part is known.

It may be of interest to give details of some of the reported cases:

Barlow's case was that of a girl aged 6 years. She suffered from headache, pallor and vomiting, and died with uremic symptoms. At the autopsy there was found a very marked chronic interstitial nephritis. The right kidney weighed 13 grammes and measured 5 x 4 x 0.5 cm. The left weighed 21 grammes and measured 6 x 3¾ x 1¼ cm. The arteries were thickened.

Bull's case was that of a girl thirteen years old. The left kidney weighed 20 grammes, was 5 cm. long and 3 cm. wide. The right measured 7½ x 4½ cm.

Filatoff's case was of a girl aged 12, who was always weak and passed very much urine. In her eleventh year she had an apoplectic attack with left-sided hemiplegia. Later she had headache and vomiting and began to lose her eyesight. An albuminuric retinitis was found. Before her death she became slightly edematous and had a severe nasal hemorrhage. The urine was clear, 1500 c. c. daily, and slightly albuminous. The arteries were tense and hard, the apex beat was exaggerated and situated below and to the left of the normal position. The autopsy showed granular kidneys, hypertrophy of the left ventricle, endarteritis of the aorta and the vessels at the base of the brain, and an old hemorrhagic extravasation in the right corpus striatum.

In Lavalée's case, a child 5½ years old suffered from ascites with fever. At the postmortem examination there was found cirrhosis of the liver, spleen, and kidneys.

We have not been able to consult Oppenheim's article.

Förster's two cases occurred in the same family. The boy died at the age of 9½ years, after an illness of five years' duration. The autopsy showed typical contracted kidneys. The girl

died at 8¼ years, having been ill three and a half years. Several weeks before her death she developed a hemorrhagic diathesis, having several hemorrhages from the mucous membrane of the mouth. An autopsy was not performed. Both cases during life resembled cases of diabetes insipidus.

To these seven cases gathered by Heubner, making eight with his own case, we may add a few others which we have found. Westphal[12] reports the case of a man aged 24 years in which there was found an atrophic kidney on one side and a contracted kidney on the other. There was no history of any previous illness and the patient succumbed after having been sick a very short time. It is of interest to note that Curschmann had diagnosed the existence of a contracted kidney with the probability of one kidney not functioning. Baginsky[13] in his text-book mentions a case in a girl aged 4 which simulated diabetes insipidus. There is no autopsy reported. Ashby and Wright[16] mention two cases which seem to belong in this group. They both occurred in girls, one 11½ and the other 10½ years. Von Buhl reported a case in a child of 1½ years (cited by Eichhorst[28]).

It is a remarkable fact that even congenital cases have been described. Baginsky[13] mentions two such occurrences in his experience, but gives no details. Weigert[14] describes briefly the following case: At the autopsy performed on a child 6 weeks old, who had suffered from marked cyanosis, there was found an atresia of the pulmonary artery, an open septum, and hypertrophy of the right ventricle. The kidneys measured 1.7 x 1 x 0.5 cm. and 2 x 1.1 x 0.4 cm. The cortex was narrow and the substance pale and firm. There were small cysts on the surface. Microscopically, there were found fairly normal parts with fatty degeneration of the epithelium and areas of marked chronic interstitial inflammation. The epithelium of the Malpighian tufts still consisted of large cells, and, like the cortical cells, showed fatty degeneration. Hellendall[14a] has reported two instances of contracted kidney, probably of congenital origin, in infants, the one 6 months and the other 2 years old.

The following case, which was observed at the Mount Sinai Hospital, adds another to this list of cases, and it is so interesting from many other points of view that it is considered worthy of publication.

Ida W., school-girl, aged 14 years. Admitted January 13, 1898.

Family History.—Is of special interest and will be given in detail subsequently.

Previous History.—The girl has always been weak and under-sized. She generally stayed at home, because running around on the street made her short of breath. She has never menstruated. One year ago her face and feet were swollen during the whole winter. She always felt better during the summer. For some time past she has had a cough with expectoration. When 6 months old she suffered from an attack of gastro-enteritis of a few days' duration. She has had no other known acute illness.

Present History.—One week ago she became very much frightened at a fire in the neighborhood at 2 P.M. She was apparently well until 11 P.M., at which time she went to sleep. The next morning it was noticed that the left side of the body was paralyzed. She complained then and still does of headache. She had fever for the first time three days ago, and two days ago she coughed up a small quantity of blood. Urination and defecation are stated to be normal. Her intelligence and memory have not been impaired. The paralysis has improved somewhat; she has twitchings of the entire left side of the body.

Physical Examination.—Under-sized girl, poorly nourished, with a dirty, anemic color. The tongue is moist and coated. There are no defects in the teeth and there is no lead-line present. There are no signs of any corneal inflammation, and no changes in the ears. She has left-sided hemiplegia with some rigidity. Sensation is unimpaired in the upper, but diminished in the lower extremities. *Lungs.*—Negative. *Heart.*—Dulness extends from 1 cm. to the right of the sternum to 5 cm. to the left of the mammillary line. The upper border is at the third rib. The apex beat is in the fifth space in the axillary line. It is forcible and fairly localized. The heart's action is tumultuous and forcible. There is a systolic murmur over the mitral area, transmitted a short distance to the left. Over the aortic orifice there is heard a systolic murmur, transmitted up and down the sternum and to the vessels of the neck. The second aortic sound is accentuated and reduplicated. The radial *pulse* is tense, the artery is very much thickened and slightly tortuous. The *liver* dulness extends from the fourth space to the free border of the ribs. *Spleen.*—Negative. *Abdomen.*—Negative. The right pupil is slightly larger than the left.

Subsequent History.—January 12, 1898: Pulse 120, respiration 32, temperature 101.8°F.

January 13: Urine neutral, 1010, clear, and contains albumin—1.4 grammes to the litre (Esbach); urea, 6½ grains to the ounce; hyaline and granular casts and a few pus cells are present. The quantity of urine could not be measured because the urination was involuntary. She has some cough and complains of pain in her stomach.

January 14: Temperature normal; labial herpes; patient somewhat soporose.

January 15: Urine contains albumin, red and white corpuscles, but no casts.

January 17: The movements from the bowels contain some blood.

January 19: Urine again shows hyaline and granular casts.

January 20: Mental condition has improved. Paralysis unchanged. Pain in abdomen less marked.

January 30: Marked restlessness.

February 3: Temperature elevated to 103°. She complains of pain in the left hypochondriac region. By percussion the spleen is found to be enlarged. It can be felt and is tender.

February 5: Temperature 104.6°. Has severe coughing spells. Over the first four interspaces on the right side anteriorly and posteriorly are numerous crepitant râles, increased voice and breathing, and a dull percussion note.

February 6: Temperature 102°.

February 7: Over right lower lobe behind there is bronchial voice and breathing. Severe abdominal pain. Temperature 100°.

February 8 to 10: Patient's condition worse. She lies in a semi-comatose condition and complains of severe abdominal pain. The hemiplegia has remained unchanged. The physical signs on the right side have partially cleared up. Electrical examination shows an almost complete loss of reaction to the faradic current in both the left upper and lower extremities.

February 15: Ulcers found on the upper and lower gums with necrotic, easily bleeding bases.

February 18: Over the upper lobe of the left lung is an area of dulness, increased voice and breathing, crepitant râles. Hemoptysis.

February 23: Necrotic areas in the mouth have increased in size and number. Ophthalmoscopic examination shows retinal hemorrhages.

February 25: Continued hemoptysis, with signs of consolidation of a large area in the left lower lobe posteriorly.

February 26: Temperature suddenly drops to 96.4°. The patient had very severe pain in the abdomen and passed a large amount of blood with the stool. Pulmonary edema.

February 27: Temperature still remains subnormal. Marked tympanites. Subcrepitant and crepitant râles heard in front and behind below the second rib down to the base on the right side. Râles heard yesterday have almost entirely disappeared. Urine contains albumin, 16 grammes to the litre. Urea, 4 grains to the ounce. Temperature subnormal.

March 3: Very marked pericardial friction sounds heard even at a distance from the patient.

March 5: Crepitant râles over the upper part of the left chest, with bronchial voice and breathing. Temperature, 94° to 96°.

March 6: Return of the pulmonary edema. Exitus.

Clinical Diagnosis.—Chronic interstitial nephritis. General arteritis. Atheroma of aorta and aortic valve. Cardiac hypertrophy. Cerebral hemorrhage. Hemorrhages into the lung and spleen. Hemorrhages in the area of distribution of the superior mesenteric artery. Fibrinous pericarditis.

Postmortem Examination.—Five hours after death. Body very much emaciated. Slight general edema, more marked on the left side of the body, with marked edema of the feet.

Lungs.—Slightly adherent at the apices. Moderate pulmonary edema. Both lungs are very firm. In the right upper lobe there is a very dense non-crepitating area which is infiltrated with blood. In the right lower lobe there is a similar smaller triangular area. In the upper left lobe are several patches of consolidation and one large hemorrhagic area. In the left lower lobe there is a large recent hemorrhage. There is marked subpleural emphysema of both lungs.

Heart.—On the anterior aspect there is very much fresh fibrin; the left ventricle shows marked hypertrophy, the thickest part of the wall measuring 3½ cm. and the thinnest 2 cm. The aortic valves show moderate atheroma. The flaps of the mitral valve are slightly thickened. The wall of the right ventricle is somewhat hypertrophied. The aorta shows patches of atheroma, especially around the openings of the coronary arteries. The coronary arteries are markedly atheromatous. On the endocardium, between the aortic and mitral valves, and on one cusp of the mitral, are patches of marked atheroma. The cardiac muscle is pale but firm.

Spleen.—Weighs 80 grammes; measures 5 x 8½ cm. Malpighian bodies are very distinct. Almost the entire spleen is taken up by a large hemorrhage.

Kidneys.—Small, red. The right weighs 59 grammes and measures 9 x 4 x 3 cm. The left weighs 34½ grammes and measures 6¼ x 3½ x 2½ cm. The capsules are very adherent; the surface irregularly granular. The kidney substance

is firm; the cortex is very narrow. The pelves of both kidneys are markedly enlarged and surrounded by fat. The markings are very indistinct. On the surface of the kidney are enlarged veins, and some of the glomeruli can be indistinctly seen as white dots. The left kidney is more markedly affected than the right, the parenchyma being only 0.5 cm. wide.

Stomach.—Catarrhal inflammation. A few hemorrhagic erosions near pylorus.

Intestines.—There is a large hemorrhage in the mesentery. No emboli nor thrombi can be found in the mesenteric arteries or veins or their branches. The superior mesenteric artery is markedly atheromatous. The small intestine shows catarrhal inflammation; the contents are mucoid and bloody. The large intestine shows catarrhal inflammation, with marked injection of the walls.

Pancreas.—Is indurated.

Liver.—Somewhat enlarged, is fairly firm, shows chronic congestion and some increase in the connective tissue. In the right lobe on the anterior and inferior surfaces are triangular areas reaching to the surface in which there is a firm deposit in and along the vessels, looking as if the vessels were firmly thrombosed.

The brain could not be examined.

Microscopical Examination. Lungs.—Show the changes characteristic of brown induration with a fair amount of increase in the interstitial connective tissue. The lower lobe shows areas where the air vesicles are filled with epithelial and pus cells and numerous red blood corpuscles. The right upper lobe shows the same condition, with a larger and more recent hemorrhage. The left upper lobe contains a large area of croupous pneumonia. The left lower lobe shows marked recent infiltration with red blood corpuscles.

Liver.—The capsule is thickened. The capillaries are dilated and there is a little increase in the interstitial connective tissue. The liver cells show marked degeneration and pigmentation. There are small hemorrhages under the capsule. The walls of the hepatic veins are thickened and the veins themselves are dilated. The arteries show marked obliterating endarteritis. Scattered throughout the parts of the liver which showed such a peculiar condition macroscopically, are irregular areas which stain very darkly with Delafield's hematoxylin, and look necrotic. These areas seem to follow the branches of the hepatic artery, surrounding and sometimes obliterating the lobules. On the addition of dilute hydrochloric acid to the unstained specimen, these areas become much paler, without the evolution of gas bubbles, and when thoroughly washed out and

then stained with the same solution, they appear more homogeneous and stain with about the same intensity as the surrounding parts of the liver. They are, therefore, areas which have become impregnated with lime salts. The absence of any evolution of gas bubbles on the addition of the acid shows that they consist of calcium phosphate.

Spleen.—Shows the changes of acute inflammation. The capsule is thickened and there is an increase in the interstitial connective tissue. The pulp is infiltrated with red blood corpuscles. The arteries are the seat of a marked obliterating endarteritis.

Kidneys.—The right kidney shows a marked chronic interstitial nephritis. In some areas the renal parenchyma is entirely replaced by fibrous tissue. Many of the glomeruli are converted into fibrous balls. Some of the tubules are dilated, others are atrophied; some contain casts, others granular material or blood. The epithelium shows marked degeneration. There are small scattered hemorrhages present and signs of chronic congestion. The arteries show marked obliterating endarteritis, many of them being entirely closed. Scattered throughout the kidney are very small areas similar to those which have been described as occurring in the liver. The left kidney shows the same changes as the right, and in even more marked degree.

Pancreas.—Contains areas of infiltration, with round cells between the lobules and in some places in the centre of the lobules.

Coronary Arteries.—There is extreme thickening of the intima, fibrous metamorphosis of the media, and extensive calcific deposits and necroses in the intima. One of the smaller peripheral arteries shows, microscopically, a thickening of all the walls; the intima contains calcified and necrotic areas, and there are broken-down thrombi attached to it. The media is almost entirely replaced by connective tissue. There are small hemorrhages in the adventitia. *The superior mesenteric artery* likewise shows irregular thickening of the intima and of the media, with small calcific areas in the intima.

Anatomical Diagnosis.—Pulmonary edema; brown induration of lungs; hemorrhages into lungs, spleen, and mesentery, lobular pneumonia; cardiac hypertrophy; general chronic arteritis; chronic congestion of the liver, with calcific deposits; acute splenic tumor; catarrhal inflammation of the gastro-intestinal tract; chronic interstitial nephritis (small red kidney).

Remarks on the results of the postmortem examination.—The kidneys from this case are among the smallest that have

been recorded in the chronic nephritis of early life. In a few of the other recorded cases, the size of the kidneys has been as follows: Handford,[15] 12-year-old girl, right kidney, 60 grammes; 8½ x 4½ x 2¾ cm. Left kidney, 15 grammes; 5 x 4 x 2 cm. In Ashby and Wright's[16] cases, from the one case of a girl 11½ years old the right kidney weighed 75 grammes, the left kidney 22 grammes. The kidneys from the other case weighed together 45 grammes and each measured 5 cm. in length. In one of Kidd's cases[17] one kidney weighed 60 grammes and the other 30 grammes.

The change in the liver is certainly very striking. In places it made the impression that the process began in the walls of the arteries and that then the parts supplied became degenerated and infiltrated with lime salt. The occurrence of such calcification in the arteries, beginning in the intima, was demonstrated in the kidneys.

The presence of calcified areas in the liver is extremely rare. Babes mentions an instance in an article on the technique of staining with safranin.* The liver described by him was obtained from a patient who suffered from tuberculosis of the femur and the hip joint. None of the other organs showed similar changes. The liver was large, grayish-brown in color, and presented grayish-yellow patches corresponding to the central veins, so that it looked like a nutmeg liver of a peculiar character. It felt sandy, and cutting it caused a grating sound. The deposit proved to be composed of lime salts in and around the central veins and their branches and in the surrounding cells. Around these areas the cells had lost their nuclei and their contours were obliterated. Babes considered the condition to be due to lime resorption from the bone disease and its later deposition in the liver. Virchow thought likewise, but the exact manner of its occurrence could not be determined.

Similar but smaller and fewer areas of calcareous impregnation were found in the kidneys and in the walls of many of the vessels. It was well marked in the walls of the coronary artery. The large number of vessels almost or entirely closed is very striking. As stated above, an examination of the brain

* Virchow's Archiv, 1886, cv., p. 511.

was not permitted, but it is probable that the hemiplegia which marked the onset of the symptoms was due to a right-sided hemorrhage.

For the sake of completeness we may note here that a blood culture was made 14 hours before death. A pure culture of staphylococcus albus was obtained, and after death the same organism was cultivated from the heart's blood. We lay no stress upon this observation, as the agony was very prolonged and the bacteremia may have been due to an agonal invasion.

General Remarks.—(1) As to the diagnosis of the main conditions, only a few words are necessary. At first sight the case might have been considered as primarily cardiac in nature, with secondary renal changes of the chronic interstitial type. The marked hypertrophy of the heart, however, with the distinctly accentuated second sound caused us to suspect a primary affection of the kidneys. The finding of the diseased radial vessels supported this view. It must be remembered, however, that a similar clinical picture can be produced by disease of the vessels without involvement of the kidneys. This fact, which has not received proper recognition, is strikingly illustrated by a case recorded by Hawkins.* As this case resembles ours to a great extent, we present it in detail:

A girl, aged 11 years, in the summer of 1891 had a week's illness, probably attributable to infarctions of the lung. In January, 1892, similar symptoms again appeared, the pain being first on the left side and later on the right. The cough, with blood-stained sputum, persisted up to the end of the illness. February 7 the legs became edematous and later the face. The urine showed a trace of albumin, no casts, and was diminished in quantity. February 25 the urine was bloody and contained a little albumin, and the patient vomited. The child died after three weeks, from what seemed to be uremic poisoning, the case being considered one of acute nephritis. There was no syphilitic history. At the autopsy all the arteries of both the aortic and pulmonary systems were found to be diseased. There was consolidation with infarctions of portions of both lungs. Both renal arteries were occluded by thrombi. There were small clots in each of the lateral lobes of the cere-

* Transactions of the London Pathological Society, 1892, p. 46, cited in part by Delafield (4).

bellum. The left ventricle was dilated and hypertrophied. For a distance of three inches above the bifurcation, the aorta was so narrow as scarcely to admit a bullet probe. The arterial wall measured only one-half inch in breadth when opened. The kidneys, microscopically, showed no signs of nephritis. The arteries, macroscopically, showed gray translucent spots and patches, smooth or corrugated. Microscopically, these were composed of indistinct fibrocellular tissue in the intima. In the media and adventitia were collections of leucocytes, especially around the vessels. The new tissue was not the seat of fatty or degenerative change, with the exception of some deeply-stained patches of amorphous material (lime?) on the surface.

(2) The hemorrhages in our case caused prominent symptoms during life. Those in the lungs were easily made out. The intrasplenic hemorrhage was diagnosed from the acute enlargement and tenderness of the spleen and the rise in temperature. The extravasation in the mesentery was indicated by excessive abdominal pain, bloody stools, and tympanites; and the sudden occurrence of subnormal temperature indicated a large hemorrhage. The question whether the hemorrhages were due to thromboses, embolisms, or ruptures of smaller or larger vessels had to be left open, as any of these conditions was possible. The marked bleeding from the gums, however, indicated that it was not necessary to assume the existence of embolism or thrombosis and that the hemorrhages might be explained by the existence of a hemorrhagic diathesis. Such a diathesis in similar cases has been noted by Filatoff[8] and Förster.[11]

(3) The arterial changes present were very advanced. The question naturally arises whether these or the renal changes were primary. This is frequently a very difficult problem. From the examination of two other members of the same family, we are inclined to believe that the lesion in the kidney was primary, as these two persons have long-standing chronic nephritis with but little evident arterial change. Of course, it is possible that their peripheral arteries may not show arteritis, while this may exist elsewhere, and, therefore, a positive opinion is not warranted.

Throughout the records there are occasional references to cases of chronic arteritis in children, and it has been noted that

there exists in certain families a tendency to the development of arterial changes early in life. The most common occurrences have been aneurisms of the cardiac valves and dilatation of the aorta (Baginsky). Jacobi,[18] in reporting a case of aneurism of the abdominal aorta in a child, refers to twenty-eight other recorded cases of aneurism in early life. Since then at least two more cases have been described. These cases need classification, however, as some of them were not due to primary arterial changes but were mycotic in origin (Eppinger). Among the striking instances of advanced arterial disease reported in childhood are the following:

Fenomenoff has recently reported a congenital aneurism of the abdominal aorta which obstructed delivery (Eichhorst). Oppe[19] describes an aneurism of the basilar artery in a boy 7 years old. Sanné[20] reports the case of a child of 2 years with narrowing of the aorta due to chronic aortitis. Pendin[21] describes in a girl of 12 an aneurism of traumatic origin. Andral[22] saw calcific plates in the aorta of a girl 5 years old. Moutard-Martin[23] saw atheroma of the arch in a boy aged 2 years. Hodgson[24] records calcification of the temporal artery in a girl of 5, and Hoffnung[25] describes an aneurism of the pulmonary artery in a girl of 10 months. Generalized arterial disease in connection with chronic interstitial nephritis without any syphilitic history has been described by Filatoff[8] and Barlow.[6]

The changes found in our case were as advanced as in well-marked arteriosclerosis of adult life. While the character of the lesions suggested syphilis, a very thorough examination of the whole family failed to elicit anything corroborative of such a view.

(4) The absence of any usual etiological factor drew our attention to the possibility of the case being an instance of so-called "family nephritis." Senator's recent volume on the diseases of the kidneys, in Nothnagel's "Handbuch," cites several instances of nephritis occurring in several members of the same family.

Dickinson[26] reports a family in which in the first generation two sisters had albuminuria for many years and died at the ages of 48 and 49. Of the four children of a brother, one son had albuminuria for 14 years and died at the age of 26, and one

daughter died at 34 after having been sick sixteen years. Two other daughters had no albuminuria and lived to the ages of 38 and 40. Of six children in the third generation, five had albuminuria, one daughter having it, from the age of 9 months, for twenty years, and one son of 20 for an unknown length of time. Another son of 15 had it for two years, and one daughter of 5 years was albuminuric since the age of 6 months.

Tyson[27] mentions the instance of a man of 30 with contracted kidneys, whose father and mother died of the disease, and one brother at the age of 37. Two children of the brother had chronic nephritis at the ages of 4 and 7 respectively. One brother died at 29 from convulsions. Two older brothers and one sister, aged 23, 32, and 36 respectively, had the disease for five or six years. One cousin on the mother's side and numerous relatives in earlier generations died of chronic nephritis.

Eichhorst[28] gives the history of an artist's family who were sufferers from the disease. The grandmother (who had no gout) died of uremia. The mother, and a daughter 24 years old, suffered from chronic interstitial nephritis, the former for fifteen years. Two sons died of uremia. A daughter, aged 22, showed signs of the disease at the time of the report.

Kidd[17] reports the case of a woman of 60 who died of nephritis of long standing, as did also her brothers. Of twelve children, seven died with the same disease, and two had it at the time of his report. In two of the fatal cases a postmortem examination was made and contracted kidneys were found. Possibly Förster's cases belong in this category.

Samelsohn[29] observed chronic nephritis in two brothers, and noted its probable existence in two sisters and a son in the same family.

Pel,[30] in a recent article, mentions several families in which he has noted the tendency to the development of chronic nephritis, and reports one instance of family nephritis not less striking than that of Dickinson. The disease affected 18 members (9 males and 9 females) of the family in three generations. Of 60 children of the fourth generation, none at the time of Pel's report was affected, but as, in contrast with the observations cited above, the disease in this series appeared later in life, their subsequent fate must remain, for the present, in doubt. Pel notes that in this family the tendency was for the sons to inherit from the father and the daughters from the mother—an exception to the Darwinian rule of heredity.

An examination into the family history of our case and a personal investigation of the members of the family, which was

possible only after repeated efforts, revealed the following interesting facts:

The father died at the age of 42 of lobar pneumonia. His previous history was negative, so far as can be determined. The mother is 45 years old and in good health, presenting no signs of renal or arterial disease. Of the twelve children, six died very young of causes which are unknown. The living children are as follows:

1. A girl of 8, who seems to be in good health and whose urine and heart show no changes.

2. A boy, aged 13, who is also in good health and in whom the physical and urinary examinations reveal nothing abnormal.

3. A girl of 14, who complains of severe headache. She is very well developed and her heart and arteries show no deviation from the normal. The urine has a specific gravity of 1016 and contains no albumin nor casts.

4. A girl, aged 19, who has been ailing for at least six years (probably over ten years). She has no history of any acute disease. Menstruation began at 12 and has always been irregular and profuse. She complains of very great thirst and has to arise several times at night to drink water. She passes very much urine. The appetite is poor. She has no headache and no vomiting. She has occasional cough and palpitation, but complains only of her excessive thirst. An examination on November 5, 1898, showed the following: There is marked anemia. The pulse is of high tension and the walls of the radials are somewhat thickened. The sphygmographic tracing shows marked elastic vibrations and only a slight dicrotic notch. The apex beat is in the fifth space just to the left of the mammillary line and is very forcible. The urine is very light in color and has a specific gravity of 1001½. There is albumin present, 0.14 per cent. (Esbach), no sugar. The microscopical examination shows only epithelium and a few leucocytes. When seen, two weeks later, there was marked edema of the eyelids and some headache, which disappeared after a few days. At the date of writing, March 1, 1899, she is in good health, except for her inordinate thirst. She is evidently suffering from a very advanced chronic interstitial nephritis, which is running a slow and quite latent course.

5. The oldest son, aged 24, gives no history of any acute disease in childhood. He has always been anemic. Six years ago he suffered all winter from a severe cough and had general edema, which began in the face. He has felt perfectly well since then and, therefore, for a long time opposed any personal

examination. On February 19, 1899, the following facts were made out. There is a moderate anemia. The apex beat is in the sixth space, one-half inch to the left of the mammillary line, and is very forcible. There is a booming first sound and an accentuated second sound at the apex. At the aortic orifice there is a slight systolic murmur and an accentuated second. The pulse is 86, the radial artery is slightly thickened, the pulse shows moderate tension. The urine is clear, 1012; contains no albumin and no casts; urea 9 grains to the ounce. Although he has no symptoms at present and the urine shows nothing abnormal, there can be little doubt, from his history and physical examination, that he has a chronic interstitial nephritis and belongs to that unusual class of cases in which, for a time at least, the urine shows no abnormalities. We have been permitted thus far to examine only one specimen of the urine, and it is quite possible that when we next examine it we may find albumin.

It is evident that we have to deal with a family in which there is a tendency to the development of chronic interstitial nephritis, this having occurred in the three eldest children.

The main points of interest in the case herewith presented are as follows:

1. The occurrence of a very advanced primary chronic interstitial nephritis at the age of 14 years.

2. Its presence in other members of the same family.

3. The extensive and marked arterial changes present.

4. The hemorrhagic diathesis, and especially the occurrence of a large hemorrhage in the mesentery.

5. The occurrence of calcific deposits in the liver.

6. The case draws our attention again to the latency of some of these cases of chronic nephritis in children. There is no doubt that some of them have been regarded as instances of diabetes insipidus. The necessity of a careful and continued observation of the heart and vessels in such cases is apparent. Others are treated for a long time for anemia without its cause being discovered. Still others do not present themselves for treatment until the fatal termination is close at hand, the patients having had no marked symptoms. The fact that chronic nephritis may run so latent a course and may occur at any age should lead us to pay as much attention to the examination of the urine of children as of adults.

We are indebted to Dr. F. S. Mandlebaum, the Pathologist of Mount Sinai Hospital, for much valuable assistance in connection with the histological part of this investigation.

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XIV.

GLIOSARCOMA OF THE BASE OF THE BRAIN PRESSING UPON AND IN FRONT OF THE LEFT LOBE OF THE CEREBELLUM, WITH REMARKS ON THE DIAGNOSIS OF CEREBELLAR DISEASE.

By Henry W. Berg, M.D.,

ADJUNCT ATTENDING PHYSICIAN.

The following data relate to the points of interest in a case of cerebellar disease which came under my observation at Mount Sinai Hospital during the summer of 1900.

The patient entered the hospital early in the clinical history of the disease. He was recognized as a case of cerebellar disease soon after his admission, and was operated upon in the hospital.

The operation was performed by Dr. Howard Lilienthal, whose study and report of the case from the surgical standpoint forms a most interesting portion of this volume.

The patient was seen several times in consultation by Dr. B. Sachs, the Consulting Neurologist of the hospital, who has kindly yielded me the privilege of reporting the case from the medical standpoint.

The history is as follows:

H. H., Russian, 36 years of age. Admitted August 22, 1900.

Family History.—Negative. Has never had syphilis or gonorrhea. Has never suffered from typhoid fever, pneumonia, or rheumatism. Was perfectly well up to seven days ago, when he began to suffer from severe frontal headache, chiefly localized over the right eye. For three weeks before that he had noticed a gradually increasing tinnitus in his left ear, accompanied by deafness on that side. For the past week, since his

headache began, he has had slight fever, but no chills, and has vomited almost daily; he also says that he feels dizzy in walking. His bowels have been constipated. No cough.

Physical Examination.—General condition good; well nourished. *Lungs.*—Negative. *Heart.*—Negative, both to auscultation and percussion, although valvular sounds are weak. *Liver.*—Negative. *Spleen.*—Not enlarged. *Abdomen.*—Slightly retracted. No taches. Temperature in the evening 100°, pulse 84, respiration 26.

Patient complains of great vertigo in walking; drags the right foot slightly, otherwise no weakness in legs. No true ataxia of lower extremities. Patellar tendon reflex exaggerated on both sides, right somewhat more than the left. No ankle clonus. No Koenig. Patient is left-handed. No tendon reflex at the wrist joints. Dynamometer, right hand, 58-54-56; left hand, 65-62-60. No ataxia of fingers. Face slightly flattened on left side. Eye muscles normal. Tongue does not deviate. Sensation of upper extremities good; complains of numbness of left side of face. Behind the left ear and over the left mastoid area the skin is very hyperesthetic and extremely sensitive to pressure.

Aural Examination by Dr. Koller.—Paracentesis of left ear done for congestion of Shrapnell's membrane. Tenderness over tip of mastoid. Internal examination of ear shows a bleeding cut in posterior part of external auditory canal. The posterior part of drumhead swollen and bulging. Over Macewen's triangle only is the mastoid sensitive to pressure.

Ophthalmoscopic Examination.—Optic nerves not well defined; surrounding them is a grayish area (pseudo-neuro-retinitis Schneider, of no significance). The discs are somewhat congested.

August 24: Complains of numbness on left side of face; sensation on left side of face diminished, normal over the rest of the body; slight titubation and staggering in walking. Staggers rather more frequently toward the left side, but also toward right, not backward. The symptoms evidently pointing to a local brain lesion, and Dr. Koller having excluded mastoid disease by his examination of the ear, he, at my request, again examined the fundus and found (August 24) optic neuritis, which he thought might be of specific origin. The diagnosis at this time was probably a local lesion of the cerebellum or base of the brain, pressing upon or involving the fibres of the left facial nerve.

Owing to the vomiting, the headache, the staggering in walking and the slight dragging of the right foot, the pain over the mastoid, the deafness, and the slight temperature, I had thought

of abscess of the base of the brain involving the cerebellum and secondary to mastoid disease.

The positive exclusion of mastoid disease, however, by Dr. Koller, together with the ophthalmoscopic findings, suggested the possible diagnosis of a specific neoplasm, localized as above. Upon this basis of local specific disease of the base of the brain, he was treated with iodides and mercurial inunctions. The amount of iodides which he could take, however, was very much limited by the fact that the patient was vomiting owing to his intracranial disease.

The clinical data observed as the case progressed were as follows:

August 26: Tenderness over mastoid has disappeared. Headache diminished. Patellar reflexes still exaggerated.

August 27: Headache diminished. No discharge from ear.

September 1: Both knee jerks still exaggerated. No increase in staggering when walking with eyes closed (Romberg).

September 7: Pupils react to light and accommodative efforts. Eye muscles normal. Numbness of left side of face persists. Hearing in left ear diminished.

September 10: Walk very weak, though there is less titubation. Pupils normal. No tenderness over mastoid.

September 15: Dr. Koller found marked choked discs in fundus of both eyes.

September 16: Flatness of left face persists, some titubation with tendency to fall backward.

On the afternoon of September 16, Dr. Sachs was kind enough to examine the patient at my request; the results of his examination were as follows: Weakness in grasp of both hands, no ataxia, both knee jerks active, unsteadiness of gait with tendency to fall to left side. Irregular contour of pupils, right pupil reacts more promptly to light, reaction to accommodative efforts fair on both sides. No deviation of tongue. Both sides of face equal.

Dr. Sachs expressed the opinion of the possibility of a specific neoplasm in the posterior fossa on the left side.

September 20: Complains of being dizzy. Diplopia in distant vision.

September 23: Complains of especially severe frontal headache. Mental condition has been very good throughout.

September 24: Vomited several times. Marked weakness of the left leg, with tendency to fall to the left side. Very constipated.

September 27: Vomiting increasing. Flatness of left side of face more marked, and has increased tendency to fall to left side

in walking. Is very weak. Dr. Sachs saw the patient again and found good faradic contractility on both sides of the face.

September 28: Dr. Sachs examined the patient again and reported slight lateral nystagmus on extreme lateral movements of the eyes, also some vertical nystagmus. Both recti externi deficient. Grasp of both hands weakened, especially of the left hand. Diminution of sensibility to touch and pain on the left side of the face. Slight ataxia in left upper extremity. Slight cerebellar titubation. Knee jerks active. Diminished power of resistance to the closure of the left eyelid as compared with the right. Diminished sensation of left side of face. Diagnosis: Cerebellar neoplasm on left side.

October 5: Patient having consented to operation, he was transferred to the surgical service of Dr. Howard Lilienthal, who has kindly written a very valuable surgical report of the case.

The disease terminated fatally. The following is the report of Dr. Mandlebaum, the Pathologist of Mount Sinai Hospital, and contains the essential data of interest in connection with the fatal lesion:

"Report on the postmortem examination of the body of H. H., aged 36 years; admitted August 22, 1900; died October 6, 1900, at 8.30 A.M. (wound examination only permitted). Examination made 14 hours post mortem.

"Opening found in the left lobe of the cerebellum (made in exploration). In front of the left lobe of the cerebellum, within the dura, is a firm, whitish tumor measuring about 4 cm. in all diameters. The tumor lies on the petrous portion of the temporal bone, just over the internal auditory meatus. The pons is indented on its left side. The nerves at the base are pressed upon. Histological diagnosis: Gliosarcoma."

Stroebe[1] gives the following points of difference between gliomas and sarcomas of the brain:

1. Gliomas infiltrate the brain substance and fade off gradually into the brain structure, while sarcomas, as a rule, compress or push aside the normal brain tissues, and are sharply outlined and frequently surrounded by a zone of markedly degenerated nerve tissue. To this rule, however, there are exceptions. Thus Bruns[2] relates a case of glioma of the ependyma of the

[1] "Ueber Entstehung und Bau der Gehirngliome," Ziegler's Beitrag, 1895, page 405 ff.

[2] "Die Geschwülste des Nervensystems." Berlin, 1897.

fourth ventricle which compressed, without infiltrating, the cerebellum and medulla.

This infiltrative growth of gliomas is further shown by the fact that nerve fibres with axis cylinders *(markhaltige Nervenfasern)* can be demonstrated in the structure of gliomatous tumors, but never in sarcomas of the brain. Generally, too, sarcomas are much harder and larger than gliomas.

This tumor, as seen from the pathological report, was a sarcomatous tumor. It originated probably from the meninges at the base of the brain, especially from the inner surface of the dura. It grew with comparative rapidity, judging from the duration of the symptoms. It compressed the left facial and auditory nerves, causing atrophy and degeneration of these nerves immediately under it, and, growing upward and backward, it pushed before itself and compressed the left hemisphere of the cerebellum, without involving to any extent the structure of the cerebellum itself. Almost all the symptoms by which the lesion was recognized and localized depended upon the interference with functions of these two cranial nerves and the characteristic symptoms of cerebellar disease. Sarcomas of the cerebellum—and for all clinical and pathological purposes this tumor must be classified as a cerebellar tumor—are rather frequent. M. Allen Starr, reporting upon 86 cases of brain tumor, found 13 cerebellar tumors—most of them sarcomas, and several of them originating from the meninges rather than from the cerebellar structure.

Dr. B. Sachs[1] reports a case of sarcoma of the cerebellum located in about the same position as in our case and giving rise to similar symptoms. Here, also, the early facial and auditory symptoms aided in the accurate localization of the neoplasm.

These sarcomas are of primary importance as brain tumors from a practical standpoint, as Bruns remarks, for the reason that, owing to their compact structure and the fact that they grow with sharply defined outlines, they are easily separated from the brain tissue proper and thus offer more favorable prospects of successful surgical interference.

The tumor in the above case had rather an irregular outline,

[1] "Text Book on Nervous Diseases of Children," 1895.

as is frequently the case in sarcomas of the base of the brain. It is found generally that such sarcomas, when centrally implanted in the brain, are apt to be more or less spherical; when growing from the convexity of the brain, they are spread out and flattened; while at the base of the brain they are apt to be, as in our case, of irregular contour.

Bruns has found that sarcomatous tumors of the brain are very rarely metastatic in character, although he has seen and reports two exceptions to this general rule.[1]

According to Meyer,[2] exclusive of gummata, tuberculous tumors, echinococci and cysticerci, brain tumors are either:

1. Connective-tissue tumors, such as: *a*, fibroma; *b*, lipoma; *c*, angioma; *d*, glioma; *e*, sarcoma; or *f*, mixtures of these.

2. Epithelial neoplasms, especially carcinomas.

3. Teratoid tumors, consisting of elements not found normally or at all in the brain structure, or at least not at the period of life at which the tumor has occurred, such as, for instance, dermoid cysts, cholesteatomata of the brain, etc., etc.

Tumors of the hypophysis, so frequently associated with acromegaly, Meyer collates separately.

It may be interesting to discuss the symptoms present in our case, chiefly with the object of estimating their value from a diagnostic standpoint, and more especially as to which could be utilized for the purposes of localization.

Undoubtedly the most important symptom noted in this case, from a diagnostic standpoint, was the titubation or cerebellar ataxia. This is not an ataxia in the true sense, but rather a staggering in walking and standing, which is one of the characteristic symptoms of cerebellar neoplasms, etc. It is generally supposed to be a disturbance of the function by which the muscles and the body at large maintain their equilibrium. This function is supposed to depend upon the connection of the cerebellum with the semicircular canals, to which is distributed the vestibular branch of the auditory nerve which carries the fibres supplied to the auditory nerve by its middle

[1] Bruns: "Geschwülste der Nervensystems," Berlin, 1897.

[2] "Die pathologische Anatomie der Hirngeschwülste." Monatshefte für Psychiatrie und Neurologie, vol. vii., 1900, Berlin.

root, which originates from the lower part of the middle peduncle of the cerebellum. The staggering in our case was toward the side, but not always toward the same side, nor was it most frequently toward the left. When the eyes were closed the walk was more uncertain but certainly not more staggering in character, as is so frequently the case in the true ataxia of tabes, when the patient walks with the eyes closed (Romberg symptoms).

M. Allen Starr[1] attaches much importance to the question as to the direction toward which the patient staggers, believing that in a destructive (paralytic) lesion of the cerebellum the staggering is toward the side upon which the tumor lies, while in an irritative lesion the staggering is toward the side away from the tumor. Our patient staggered to either side. Schede,[2] of Bonn, found in a patient whom he operated upon for cerebellar disease, and who staggered to the left, that the tumor, which he first sought for on the right, was found on subsequent exposure of the left hemisphere of the cerebellum.

The staggering in our patient was the variety of cerebellar ataxia which Bruns[3] believes is due to a lesion of tracts of fibres, centrifugal or motor in function, passing from the brain through the superior peduncles of the cerebellum to the cerebellum and thence through the inferior peduncles of the cerebellum to the spinal cord. A destructive lesion anywhere in the course of this tract should yield motor or true cerebellar ataxia. These tracts of fibres pass through both hemispheres of the cerebellum, but very close to the processus vermiformis. For the most part, indeed, they pass through the processus vermiformis, decussating at their entrance into and at their exit from it. It would naturally follow that lesions of this portion of the cerebellum, or lesions in which this portion is involved, would most frequently produce cerebellar ataxia. This was the view of Nothnagel. Many cases are on record, however, of small tumors of the hemispheres of the cerebellum in which the vermiformis was not involved directly or indirectly,

[1] American Journal of the Med. Sciences, No. 94.

[2] Deutsche med. Wochenschrift, August, 1900.

[3] "Klinische Erfahrungen über die Functionen des Kleinhirns." Wiener klin. Rundschau, 1896, Nos. 49-52.

and yet in which there was a history of typical cerebellar ataxia; while, on the contrary, lesions of the processus vermiformis have been reported in which cerebellar ataxia was absent. We may, therefore, say that cerebellar ataxia most frequently speaks for a lesion of the vermiform process of the cerebellum, yet it does not invariably follow that this is the case.

The patient under discussion, as well as the case reported by Dr. Sachs, in whom the tumor only compressed the left hemisphere of the cerebellum and did not affect the vermiform process even indirectly, are cases in point; the cerebellar ataxia, as has been seen, having been a marked symptom. We can therefore, from the presence of cerebellar ataxia, infer only that there is cerebellar disease, without, from this symptom alone, attempting to localize the portion of the cerebellum involved.

The dizziness, of which the patient complained so early and so constantly in the course of the disease, is a symptom which is almost uniformly present in cerebellar tumors. It is quite frequent, however, in cerebral tumors generally, and in this respect is comparable to headache as a symptom. It does not compare in importance, in the diagnosis of cerebellar lesions, with cerebellar ataxia. The dizziness in cerebellar disease may be of different types. The vertigo may consist of a feeling as though the patient were turning around or as though objects external to the patient were turning about him. The vertigo may be vertical, horizontal, or in any other or all planes. In our case it may have been the direct result of the influence of the tumor upon the function of the cerebellum, or it may have been the result of the paralysis of the auditory nerve, due to the atrophy of the nerve produced by the pressure of the tumor, which was immediately over it. In the latter case the vertigo would be caused in a manner similar to that of Ménière's disease.

Our patient, in speaking of his dizziness, complained that everything in the room was spinning around him.

The headache was, as usual, an early and, to the patient, an extremely important symptom. Indeed, it was the terrible headache which caused the patient to demand operation or

some other mode of relief. The pain was constant; it was localized chiefly over the right orbit, and the case is a good instance of the rule that the site of the headache in brain tumors has no necessary relation to the location of the neoplasm.

The vomiting was the first symptom in the history of this case, and it persisted more or less continuously during the whole time the patient was under observation. He seemed to vomit more frequently when sitting up or walking about. This would naturally follow from the increase in the dizziness when walking or standing.

There were no convulsions at any time during the course of the disease, either of a general type or localized, that is to say, of the Jacksonian type. This is the rule in cerebellar tumors, and in this respect these tumors differ from tumors of the cerebrum, in which convulsions are very frequent, while in tumors of the cortex of the cerebrum (motor area) Jacksonian epilepsy forms an important diagnostic and localizing symptom.

The deafness which occurred as one of the first symptoms in this case was evidently due to the pressure upon and atrophy of the auditory nerve, caused by the tumor. It was a symptom which, when taken in conjunction with the extreme hypersensitiveness of the skin over the mastoid and the temperature, led me to suspect an abscess of the cerebellum secondary to mastoid disease.

The facial flatness was explained by the supposition that the abscess compressed the facial nerve at the internal auditory meatus. To this opinion, too, the rapidity of the development of the symptoms, pointing to pressure upon the cerebellum, added much, an abscess as a rule increasing more rapidly than a tumor. The hypersensitiveness of the skin behind the ear and over the mastoid is an extremely interesting symptom. It may have been due to an irritation of the sensor fibres from the trigeminus, which were involved through their connection with the facial nerve, but it is far more probable that the sensitiveness to percussion and pressure behind the ear, without the presence of edema, was the manifestation of the direct local pain caused by the growth of the tumor. Bruns attaches a great deal of importance to the presence of such a localized area of pain, elicited by percussion and palpation with the

fingers of the examiner, in localization of the neoplasm. Such localized hypersensitive areas of the scalp are in the vast majority of cases located over the site of the tumor. This symptom, in our case, was an important means of localization.

Choked disc, which occurs so early in most cases of brain tumor, was not observed, although frequently sought for, until eleven days before the patient was operated. This shows that, although when present choked disc is an important symptom of brain tumors, yet its absence in no sense excludes the presence of a neoplasm or abscess in the cerebrum or cerebellum.

Our case showed no signs of paralysis of the extrinsic muscles of the eyes until a week before operating, when diplopia was complained of by the patient. Dr. Sachs had some time before this observed slight lateral horizontal nystagmus upon extreme movements of the eyes to the side, also vertical nystagmus upon extreme movements of the eyes upward and downward. He noticed, at the same time, that both recti externi were weak. This last symptom is rather exceptional in cerebellar neoplasms, although in the last stages of these tumors all the other extrinsic muscles of both eyes almost uniformly become paralyzed. This is especially the case in tumors of the processus vermiformis, and is probably the result of the pressure exerted upon the corpora quadrigemina. It is owing to this weakness of the eye muscles that the nystagmus generally occurs, and this, too, is not a rare symptom in the last stages of cerebellar tumors.

Bruns remarks that the nystagmus might appear independently of any paralytic condition in the muscles of the eyes, and should then be considered a direct cerebellar symptom, connected possibly with the vertigo. The fact, however, that the abducens was paralyzed, in the case we are discussing, appears to point to such paralysis as the direct result of pressure upon the sixth nerve by the tumor. This paralysis, therefore, like that of the facial and auditory nerves, was an aid in the localization of the tumor.

It will be seen, from what has been said in the case of this patient, no conclusion as to the site of the neoplasm or lesion, further than that he was suffering from a cerebellar tumor, could have been made without the symptoms which depended upon the involvement of neighboring structures.

This is true generally of our ability to localize cerebellar tumors. We must call to our aid all the facts obtainable as to the integrity or involvement of neighboring cranial nerves, peduncles of the cerebrum, the pons, the corpora quadrigemina (shown by oculomotor paralysis and nystagmus), and the medulla oblongata. Pressure upon the pons in the median line may be shown by paraplegia, or laterally by hemiplegia on the opposite side of the body. In the latter instance we can localize the cerebellar hemisphere in which the lesion is located.

Bulbar symptoms too, due to involvement of the medulla, will materially assist in the localization.

Pressure from cerebellar tumors at the decussation of the pyramids may cause hemiplegic or paraplegic symptoms.

Any or several of the cranial nerves may be involved in different cases. Dr. Sachs attaches especial importance to a thorough investigation of the facial nerve and the muscles supplied by it, as to their electrical reaction, etc.

Our success in localizing the cerebellar neoplasm as to its position in the cerebellum will depend not upon purely cerebellar symptoms, but upon symptoms the result of the involvement of neighboring structures. Thus in our case the flatness of the left side of the face, noticed almost as soon as the patient came under observation, the deafness of the left ear, the typical cerebellar ataxia combined with the vertigo and vomiting, and finally the headache, pointed to a lesion in the cerebellum, either a neoplasm or abscess, localized in the left hemisphere and pressing upon the facial and auditory nerves. The facial paralysis, indeed, excluded Ménière's disease as a cause of the vertigo; for while vertigo is a symptom of Ménière's disease, facial paralysis is not. When hemiplegia occurs with cerebellar symptoms, it is generally due to pressure or involvement of the motor tracts above the decussation of the pyramids by a tumor originating in the cerebellum. The hemiplegia is, therefore, as a rule, on the side opposite to the cerebellar tumor, while when cranial nerves are thus pressed upon the nerves affected are on the same side as the cerebellar tumor.

As far as the treatment of cerebellar neoplasms is concerned, cases in which the diagnosis has been made of cerebellar tumor should be subjected to a thorough antisyphilitic treatment by

mercurials and very large doses of iodides. This should be done so thoroughly as to leave no room for doubt that any cases of specific neoplasm will be excluded from the risk of being subjected to operation. Furthermore, when the question of a tubercular lesion has been settled in the negative, then the case should be carefully investigated from a clinical standpoint, with the view of discovering symptoms aiding in the localization of the tumor. I do not think that in the absence of symptoms which indicate whether the tumor occupies one or the other hemisphere or the vermiform process of the cerebellum, an operation should be attempted. I am aware that recently a case has been reported (Schede, of Bonn) of a successful operation for cerebellar neoplasm in which the tumor was sought in one hemisphere and not found, then the other hemisphere explored and the tumor found and removed. Nevertheless, I think that symptoms should be present, if sought for, which will indicate on what side of the cerebellum the neoplasm is situated.

The exploration of the cerebellum on the side at which the tumor is not, not only adds immeasurably to the risks of the operation, but discourages the operator from attempting the exploration of the other side of the cerebellum. In such a case, possibly, a tumor might be found and removed, if the operator's energy and courage—for he requires both of these in this operation—are not wasted in the preliminary and fruitless search.

In short, we say that to know that there is a cerebellar tumor is not sufficient localization for purposes of operation. We must indicate, if possible, the side of the cerebellum in which the tumor is growing.

XV.

PURPURA HEMORRHAGICA.

By D. H. Davison, M.D.,

ADJUNCT ATTENDING PHYSICIAN.

M. F., aged 30 years; married 7 years; one child, 6 years of age; no other pregnancy. Had measles in childhood; no other illness.

Family History.—Parents living and healthy. Three brothers and three sisters, all in good health. No taint of hemophilia. Patient has always lived in comfortable quarters and enjoyed good food. Six months ago, after the extraction of three teeth, a bleeding from the gums began which, despite all efforts, continued for eleven days, when her husband brought her in a carriage to Mount Sinai Hospital. On the way the bleeding ceased, but, as a precautionary measure, she was detained by the house surgeon for four hours, and, as the hemorrhage had not then recurred, she was permitted to return to her home. A condition of marked debility ensued, evidenced by pallor, shortness of breath, and a disinclination for effort of any kind, so that most of her time was passed in bed. Although heretofore she had menstruated every four weeks, the flow lasting for four to five days, she now began to suffer from metrorrhagia, the flow being rather profuse for a fortnight, then diminished somewhat, but recurred with more or less severity until June 6, 1899, when she was admitted to the gynecological service. The following day a thorough curettement and trachelorrhaphy were performed. A septic fever followed that lasted for little more than a week. On June 24 patient was discharged cured, but in a condition of marked anemia.

Five days after leaving the hospital, hemorrhagic spots were observed, covering body and extremities. Three weeks later there occurred a hemorrhage from the rectum, and vomiting, but not of blood, also moderate epistaxis.

Four weeks later (August 24) began to suffer from severe headache, had vaginal bleeding of moderate degree (probably menstrual flow), some pains in the joints and calf of right leg, bleeding from the gums, and at this period was admitted to the

medical service. On admission patient looks fairly well nourished, but very anemic. Small hemorrhagic spots are scattered irregularly over abdomen, back, and extremities. Blood oozes from the gums, which are somewhat soft but not spongy. Breath does not exhale fetid odor. Blood likewise oozes from the vagina and rectum. Patient complains of severe frontal headache and feels very weak. Pulse 96, respiration 26, temperature 100.4°.

Abdomen is somewhat tender; some pains in the various joints and in calf of right leg.

Physical Examination. Lungs.—Negative.

Heart.—No murmur, no appreciable change in area of dulness, action regular.

Liver.—Dulness from sixth rib to free border.

Spleen.—Negative.

Urine.—Acid, 1018; albumin, a trace; no sugar. A few epithelial and pus cells. No blood. No casts.

No swelling of joints or enlargement of long bones. No swelling of the glands.

Blood.—Red cells 2,364,000; white cells 9,600, mostly polynuclear. Slight poikilocytosis. No myelocytes or megaloblasts. Hemoglobin 35 per cent.

Treatment.—Scraped beef and fluids, acids and acid fruits. Quinine. Application to gums of solution of argentum nitrate 10 per cent.

August 28 (four days after admission): Gums still bleeding. No new petechiæ. Regular defecation. Vaginal flow ceased.

August 29: General condition somewhat improved.

September 2: Vaginal bleeding. Vomited dark fluid. Pulse 96 to 106, respiration 24 to 26, temperature 100° to 101.4°. Daily average of urine, 50 ounces. No diminution in percentage of urea.

September 3: Vomited large quantities of coffee-ground matter and fresh blood. Complains of being unable to see distinctly. Diplopia.

September 4: Vomiting has ceased. Patient is extremely restless and excited.

September 5: General condition worse. Pulse 110 to 120, respiration 26 to 30, temperature 99.8° to 100.4°. An examination of the blood at this time gave following result: Red cells 3,200,000, white cells 7,000, hemoglobin 25 per cent., otherwise no change.

September 6: Alternately apathetic and restless. An examination of the eyes by Dr. Koller revealed following condition: Discs swollen, outlines lost, the appearance of choked disc.

Extensive hemorrhages along the blood vessels. Right eye: In place of fovea a cherry-red spot. Left eye: Also red spot in region of macula, the latter gray and edematous. No hemorrhages in the periphery.

September 7: In condition of stupor. Internal strabismus. Pupils react sluggishly. No irregularity. A blowing systolic murmur over pulmonary area.

September 11: The various hemorrhages have continued. Noisy delirium. Pulse gradually weaker and, at 3:45 A.M., ceased to breathe.

Attempts to control the various hemorrhages by means of ergotin, stypticin, calcium chloride, gelatin applications to the gums, etc., etc., were futile, and, although the bleeding at times was apparently controlled, the result proved at no time more than temporary.

We are thus confronted with the case of a previously healthy individual, of good stock, living in comfortable quarters and indulging in wholesome food, in whom so slight an operation as the extraction of a few teeth inaugurates a series of hemorrhages that ultimately terminate in death.

Hemophilia was excluded by the family history and the sex of the patient, as the female, although the transmitter of the diathesis, is herself almost never a bleeder.

Scurvy was likewise excluded by the absence of an etiological factor in the shape of improper food, and the sudden onset of hemorrhage, without prodromal symptoms of anemia, etc. The gums, too, were the seat of passive hemorrhage rather than the ulceration of scurvy, and there was an absence of fusiform swelling of the long bones.

Leukemia, myelogenic leukemia and pseudo-leukemia, could in turn be eliminated by the slightly increased leucocytosis, the absence of myelocytes and megaloblasts and of enlargement of the spleen and lymphatic glands.

Pernicious anemia was in turn excluded by the comparatively moderate reduction in the number of red blood cells, the somewhat increased leucocytosis, and, above all, by the clinical history.

On the other hand, the first manifestation of disease being hemorrhage, without local cause, in a typically healthy woman of good antecedents, under surroundings conducive to the

maintenance of good health and the absence of organic cause, compels us to class the present case with those hitherto unexplainable forms of the hemorrhagic diathesis to which its discoverer, Werlhof, has given the name morbus maculosus.

Of the pathology of this disease comparatively little is known.

Hemorrhage being the symptom *par excellence*, the attention of observers has naturally been directed to the state of the blood and blood vessels.

The changes in the blood noted have been: (1) A diminution of the fibrin (this is not invariable) and in the quantity of solids; (2) a reduction in the number of red cells, with (3) an increase of the white cells. Embryonal elements and bacteria have been present at times.

In our case the only changes noted were those mentioned in connection with the history.

Changes in the walls of the blood vessels have been claimed by some observers. Thus, W. Fox in one instance found amyloid degeneration of the capillaries, but, as the patient was at the same time suffering from syphilis, the latter disease may have been responsible for the condition of the vessels.

On the other hand, Dickinson, in a case of meningeal hemorrhage associated with purpura, after a careful microscopical examination of the vessels of the pia mater, could discover no change in their walls, and in another case of purpura with hydatid cyst an examination of the vessels led to the same negative result.

Vasomotor disturbances probably figure in the production of purpura. Vascular dilatation has at times been observed, with resulting stasis.

Injuries to the spinal cord have been followed by superficial ecchymosis, and Simon has experimentally produced cutaneous hemorrhages by destroying several of the great sympathetic ganglia in the neck of the frog. Nothnagel, too, by wounding certain points in the cortex of the brain, produced multiple hemorrhages in the lungs.

There appears to be a certain analogy between the hemorrhages of purpura and those of hemophilia. The latter condition, as we know, is founded on a congenital disproportion

between the volume of blood and the calibre of the blood vessels: thus, given an increased pressure of blood with diminished resisting power of the blood vessels, hemorrhage will be the result. What occurs congenitally in hemophilia may be a sporadic condition in purpura, giving rise to hemorrhages as the result of vasomotor influence or other causes which are as yet beyond our ken.

As a postmortem examination was not permitted in the present instance, we were deprived of the opportunity of further investigation.

XVI.

STATISTICS OF CHILDREN'S DISEASES.

DECEMBER, 1898, TO DECEMBER, 1899.

B. SCHARLAU, M.D., ATTENDING PHYSICIAN.

Respiratory System.

Bronchitis, acute	6
" chronic	1
Empyema, acute	52
Emphysema	1
Pneumonia, lobar	40
" broncho-	55
" tubercular	1
Pleurisy with effusion	6
Pyopneumothorax	3
	165

Digestive Tract.

Appendicitis, acute	1
Atresia ani	1
Colitis, acute	12
Constipation	5
Diarrhea, summer	3
Entero-colitis	4
Gastro-enteritis	17
	43

Genito-Urinary System.

Carcinoma of kidney	1
Nephritis, acute	3
" subacute	1
Urine, incontinence of	1
Hemorrhage after circumcision	1
	7

Traumatic Cases.

Burns of body	1
Fracture of superior maxilla and contusion of face	1
Granulating wound	1
Kyphosis	1
	4

Circulatory System.

Heart disease, chronic valvular	16
Pericarditis with effusion	2
	18

General Diseases.

Anemia	3
Hemophilia and epistaxis	1
Hypertrophic cirrhosis	1
Leukemia	2
Rachitis	4
Rheumatism, acute articular	2
Scorbutus	1
	14

Nervous Diseases.

Amaurotic family idiocy	1
Chorea	4
Hemiplegia	1
Idiocy and mutism	1
Polyencephalitis	1
Poliomyelitis, anterior	1
Concussion of brain	1
	10

Infectious Diseases.

Malaria	3
Meningitis, cerebro-spinal	15
" tuberculous	3
Diphtheria	1
Trachoma	1
Tuberculous glands	1
Typhoid fever	29
	52

Ear Diseases.

Otitis media	1

Total of children's diseases	314
Children remaining from last year's service	16
Death rate	27%

OPERATIONS.

For atresia ani	1	(*d*) Delorme's operation	7
Empyema:		Skin graft	1
(*a*) Primary resection of rib.	51		
(*b*) Intercostal incision	1	Total operations	89
(*c*) Secondary resection of rib	27		

DEATHS.

Atresia ani	1	Nephritis, acute	2
Anterior poliomyelitis	1	" chronic	2
Burns	2	Pneumonia, lobar	7
Empyema	20	" broncho-	23
Diphtheria	1	" tubercular	1
Enteritis	2	Pyopneumothorax	2
Heart disease, valvular	3	Post-diphtheritic paralysis	1
Leukemia	1	Retropharyngeal abscess, sepsis	1
Meningitis, cerebro-spinal	10	Rachitis	1
" tuberculous	4	Typhoid fever	3
" traumatic	1		
" purulent	1	Total deaths	92
Marasmus	2		

DECEMBER, 1899, TO DECEMBER, 1900.

HENRY KOPLIK, M.D., ATTENDING PHYSICIAN.

	M	F
Respiratory System.		
Bronchitis, acute	4	..
" chronic	1	..
Empyema, metapneumonic	34	21
" tuberculous	..	1
" and erysipelas	1	..
Pneumonia, lobar	22	15
" broncho-	32	26
" aspiration	..	1
Pleurisy with effusion	3	..
" dry	..	2
Tuberculosis pulmonary	..	2
	97	62
Circulatory System.		
Endocarditis, acute	1	1
" chronic	9	5
Endocarditis, chronic, with nephritis	1	4
Pericarditis with effusion	..	1
" adherent	1	..
" and endocarditis	1	3
	13	14
Gastro-Enteric Tract.		
Colitis acute catarrhal	3	1
" croupous	2	2
" mucous	1	..
Constipation	1	..
Cholera infantum	1	..
Gastritis, acute catarrhal	1	1

	M	F
Gastro-Enteric Tract. —*Continued.*		
Gastro-enteritis	8	4
Appendicitis, chronic	..	1
	17	9
Diseases of the Blood.		
Anemia, Von Jaksch's	..	1
Acute leukemia	1	..
Anemia, simple	..	1
Henoch's purpura	1	..
	2	2
Nervous System.		
Chorea, Sydenham's	2	10
Cerebellar tumor	..	1
Epilepsy, grand mal	1	1
Glioma of cerebellum	..	1
Hysteria	1	..
Hydrocephalus, chronic		1
Spastic paraplegia, epilepsy, idiocy	..	1
	4	15
Genito-Urinary System and Kidneys.		
Cystitis, tuberculous	1	..
Nephritis, acute	..	2
" subacute	1	1
" chronic	5	1
	7	4

Diseases of the Liver.	M	F
Jaundice, acute catarrhal	1	..
Liver, syphilis of	..	1
" cystic tumor of	..	1
	1	2

Infectious Diseases, Acute and Chronic.		
Actinomycosis	..	1
Diphtheria	1	1
Erysipelas	5	..
Influenza	..	1
Malarial fever	3	2
Measles	1	..
Meningitis, cerebro-spinal	3	..
" tuberculous	9	9
" purulent	3	1
Parotitis, acute infectious	1	..
Scarlet fever	..	1
Typhoid fever	18	13
Tuberculosis, general miliary	1	..
Varicella	..	1
	45	33

Constitutional Diseases.		
Diabetes mellitus	..	1
Lymphosarcoma abdomen	1	1
Marasmus	1	1
Rheumatism, acute articular	5	4
" subacute	1	..
" muscular	1	..
Rheumatism and endocarditis	1	..
Rachitis	1	1
	11	8

—Continued.

Cutaneous Diseases.		
Erythema multiforme	..	1
Pemphigus with pneumonia	..	1
	..	2

Unclassified Diseases.		
Burns	1	2
Febricula	1	..
Little's disease	1	..
Necrosis of rib	1	..
Periostitis of elbow	1	..
Subphrenic abscess	1	..
Sunstroke	..	1
Tumor of abdomen	1	..
	13	3

Total, 364. Males, 210; females, 154.

DEATHS.

Acute leukemia	1	Meningitis, tuberculous	18
Burns	2	" cerebro spinal	1
Colitis, croupous	3	" purulent	4
Diabetes mellitus	1	Pneumonia, lobar	3
Diphtheria	1	" broncho-	10
Empyema	9	" aspiration	1
" tuberculous	1	Pemphigus with pneumonia	1
" and erysipelas	1	Pericarditis, adherent	1
Endocarditis, acute	1	Rheumatism and endocarditis	1
" chronic	3	Rachitis	1
Endocarditis and chronic nephritis	1	Typhoid fever	1
Gastro-enteritis	4	Tuberculosis, general miliary	1
Glioma of cerebellum	1	Marasmus	1
Henoch's purpura	1	Total	75
Hydrocephalus, chronic	1		

Death rate, $20\frac{4}{5}\%$.

EMPYEMA—OPERATIVE REPORT.

Cases admitted	55	Cases unoperated (moribund)	3
" operated	51	" died	9
" operated before admission	1	" died following operation in hospital	5

Death rate following operation in hospital, $9\frac{1}{10}\%$.

XVII.

REPORT OF THE DEPARTMENT OF GENERAL SURGERY FOR 1899.

By Arpad G. Gerster, M.D.,

ATTENDING SURGEON,

IN COLLABORATION WITH

A. A. Berg, M.D., A. V. Moschcowitz, M.D., and Joseph Wiener, Jr., M.D.,

ADJUNCT SURGEONS.

During the past year several important changes have taken place in the personnel of the Surgical Department. First of all, we suffered a severe loss in the death of Dr. William W. Van Arsdale. Secondly, on account of the steady increase of the work and with a view to the necessities of the new hospital, now a matter of realizable certainty, the Board of Directors have, in concurrence with the wish of the Medical Board, appointed Dr. Howard Lilienthal to the vacant position of Attending Surgeon, his term of service to begin from December 1, 1900, from which date on the available number of beds were to be divided into two departments, according to an agreement to be arrived at by the surgeons themselves. Each of these divisions was to have its own staff of adjuncts and, in the new hospital, each its own house staff. On account of the death of Dr. Van Arsdale and of the advancement of Dr. Lilienthal, four vacant adjunct surgeoncies were to be filled. The Board of Directors appointed Drs. G. E. Brewer, Joseph Wiener, A. V. Moschkowitz, and A. A. Berg to these positions. The first two of these gentlemen were assigned to the division of Dr. Lilienthal, the other two to that of Dr. Gerster. Up to December 1 they were to serve pair and pair by turns; after that permanently each in his own division. This arrangement was deemed proper, so as to give all of these gentlemen, new to the service, ample opportunity to familiarize themselves with their duties.

As to the routine of the ward service and of the operating room the following notes are pertinent:

One of the adjuncts was assigned to the supervision of the ward work, his duty being to visit each ward during the course of each afternoon. This order was instituted on account of the fact that the house staff being regularly engaged in the operating room during the entire afternoon, the ward patients did not receive adequate attention during periods of time extending over from four to six hours. Newly admitted patients were thus examined at once by the adjunct, who decided whether their case was an urgent one or not. In the former case, the patient was at once prepared and sent up to the operating room to be attended to in the regular routine of the afternoon's business. In addition to this, the adjunct on ward duty also had the supervision of the histories, and had to see that no accumulations of unfinished history work should occur. Finally, he was in charge of all emergency work, occurring at any time of the day or night, when the surgeon in chief was not present in person. To him belonged all the operative work demanding an immediate disposal.

While the first adjunct had charge of the ward and emergency service, the second adjunct was assigned to the immediate assistance to be rendered to the surgeon in the operating room. His duty was to control and supervise the management of the asepsis and antisepsis, to aid the "instrumentarius" in the selection of the proper instruments required for rarer operations, to assist at the wound, and, in the absence of the attending surgeon, to perform all the operations on the list of the day —in short, to serve as the substitute of the attending surgeon.

This arrangement had many features of great advantage, which might be mentioned here. First, the surgeon always had the aid of an experienced and permanent assistant, who was authorized and competent to step into his place in case of sickness or unavoidable detention. Thus, both the appointed and emergency work received regular and prompt attention, and sickness or detention of the surgeon never could lead to disarrangement or even retardation of the work laid out for each day. Both adjuncts were, by these means, in constant and intimate

contact with the service, and the intentions of the surgeon were scrupulously paid attention to under all circumstances. In the operating room and during the bi-weekly general visits all the members of the staff united. The work thus done in common and, as it were, under the public eye, could not fail but interest every participant and to accrue to the benefit of every patient.

Every three months the adjuncts changed places.

It affords me pleasure to bear testimony to the indefatigable zeal and efficiency of the gentlemen serving on the house staff, especially in the matter of conducting, indexing, and preserving the histories. This prodigious work was facilitated by the establishment of several indices and cross-indices.

As to the detail of the measures to prevent operative infection, the following things may be said: In addition to the use of knitted cotton gloves, pure gum rubber gloves have been employed at dressings, and in operations where success depended entirely upon a reliable asepsis, as, for instance, in the radical cure of hernia. It cannot be said that, on the whole, a material difference was observed in the results obtained. Occasionally infections did occur, just as before, showing that the use of rubber gloves did not occlude all the portals for the entrance of noxious germs.

In weighing the merits of this question, a purely academic standpoint, based upon the findings of the laboratory alone, will not give an adequate criterion of the matter, which is, after all, a purely practical one. First of all, we must consider that in a rapidly changing personnel, both on house staff and in the nursing, new and new, often undreamt-of factors of infection are introduced at each change of attendants. Even the most rigorous supervision and scrutiny of these raw elements will not promptly and always detect certain practices fatal to a successful asepsis. This circumstance must account for two instances of peritoneal sepsis following so-called "interval" operations for appendicitis. The chief source of danger is to be looked for, not in the operating room itself, but rather in the wards. A certain number of patients suffering from phlegmonous inflammations, from acute and chronic osteomyelitis, and from suppurative appendicitis are and must be dressed by

the members of the house staff. This is the chief source of infection. The handling of pus-soaked dressings with unprotected fingers will so contaminate the subungual spaces that the most thorough scrubbing and subsequent disinfection will not render them safe. Fingers thus polluted may, immediately after a thorough process of preparation, be found sterile by the usual laboratory tests. Yet, at the end of a prolonged operation, after continuous soaking and maceration in blood, serum, and solutions, deeper layers of the epidermis become exposed. These, not having been reached by any disinfecting measures, will inevitably cause mischief.

To attain the best practical results, it is therefore necessary to direct our attention mainly to the subject of "prevention," that is, the scrupulous avoidance of contaminating contact at all times, especially in dressing suppurating wounds and in making digital examinations of the rectum, vagina, oral cavity, or of any sinus or deep wound. Here the use of rubber gloves or of rubber finger stalls is of the utmost importance. In the practical application of this principle, the natural disposition, the home training and personal nicety and cleverness of the individual surgeon play a most important rôle, and an automatic vigilance and circumspection in performing necessary tasks in the presence of infectious surroundings, so as to avoid the infection of one's own hands and person, is a virtue deserving most assiduous cultivation. A lack of this skill of keeping one's hands unsoiled cannot be compensated for by the most laborious processes of scrubbing and disinfection. Inversely, the surgeon whose hands are kept clean by easy habit will be most "lucky" in the frequency of his achieving faultless curative success.

On account of the variability of this factor in the personal equation of the individual cleanliness of each assistant and nurse, *pure asepsis* is not safe in our hospitals, where nurses and assistants change so frequently. Hence a reversion to some of the older, abandoned practices of *antisepsis* was found necessary—such as a frequent rinsing of the hands in antiseptics, then the flushing and irrigation of the wound during the progress of an operation, and, finally, an efficient drainage by wicks of gauze or tubing.

As to the comparative merits of cotton and rubber gloves, it may be said that while the former are durable, inexpensive, admitting of three or four changes during one and the same operation, the rubber gloves are expensive, very easily pricked and torn, and hard to slip on and off. Manipulation of instruments is easy with cotton gloves, and their adhesiveness a great advantage in handling viscera or highly polished instruments. Rubber gloves confine, even constrict the fingers, interfere with touch, and, on account of their slipperiness, render the operator's hold on highly polished instruments very insecure.

For these reasons the use of rubber gloves seems to be very commendable in operating upon and dressing suppurating wounds, or in examining the rectum, etc.; on the other hand, cotton gloves deserve the preference in all so-called "aseptic operations," but should be changed every 15 or 20 minutes for a new pair.

To afford additional security, linen caps are now worn by all those engaged in operations, and in "aseptic cases" a respirator, or surgical muzzle, consisting of a gauze compress fixed against nose, mouth, and the beard, is put on. This is done to prevent an infection of the wound by particles of saliva, easily scattered in speaking, coughing, or sneezing. An accidental infection of this kind is especially to be avoided when the surgeon or assistants suffer from catarrhal affections of the air passages, during which the micro-organisms therein contained are apt to be virulent.

Report of Anesthesias.

A. In the General Surgical Service—total, 1,099.

Chloroform	789	Eucaine, gas, and ether	1
Ether	68	Schleich local and chloroform	2
Chloroform and ether	70	Gas, ether, and chloroform	8
Cocaine	29	Schleich local	4
Eucaine	24	Eucaine and chloroform	3
Gas	46		
Gas and ether	55		

B. Gynecological Service—total, 343.

Chloroform	188	Eucaine	1
Ether	118	Gas	5
Chloroform and ether	29	Gas and ether	2

C. Genito-Urinary Service—total, 10.

Chloroform	6	Chloroform and ether	1
Ether	3		

D. Eye and Ear Service—total, 184.

Chloroform	36	Gas	1
Ether	93	Gas and ether	1
Chloroform and ether	1	Chloroform and ether, āā	1
Cocaine	48	Cocaine 5%, pilocarpine 2%	3

During the past year we have reverted to the former predilection for chloroform. Only when distinct contraindications to its employment existed was ether or laughing gas used. Gas alone was chiefly employed in minor operations which lasted but a few minutes, and, in conjunction with ether, it was found to be a valuable adjunct, doing away with the preliminary sense of suffocation and excitement. No death from anesthesia occurred during the past year.

In collating and publishing the facts drawn out of the histories written up during the past year, the same principles were observed that guided us before. Main stress was laid upon bringing out, first, all of those cases in which death frustrated the surgeon's efforts, or in which a failure of one or another kind rendered the history instructive.

Operations on Brain, Spinal Cord, and Nerves—13 cases, 4 deaths.

	Totals.	Deaths.
Craniotomy for depressed fracture of vault of skull	1	1
" for depressed fracture of vault of skull, fracture of base	1	
" for compound fracture of skull, abscess of brain, purulent meningitis	1	1
" for Jacksonian epilepsy, symptoms of encephalitis	1	
Craniectomy for relief of intracranial tension due to tumor	1	1
" for relief of intracranial tension due to tumor of pituitary body	1	
" for injection of antitetanic serum	1	1
Laminectomy for old fracture of thoracic vertebræ	1	
" " ankylosing spondylitis	1	
" " sarcoma of spine, extirpation	1	
Exploration of lateral sinus after brain abscess	1	
Resection of Gasserian ganglion (Hartley-Krause)	1	
Stretching of saphenous nerve	1	

1899, vol. ii., page 967. *Compound Fracture of Skull; Abscess of Brain; Craniotomy; Drainage; Purulent Meningitis; Death.*—David F., 3½ years old, admitted October 17, sustained eighteen days previously, through the kick of a horse, a lacerated wound in the right temporal region. The wound was immediately dressed at Gouverneur Dispensary, and subsequently for eleven days, when an attack of general convulsions set in. During the first two or three days the mother observed high fever, but apparently the fracture remained unrecognized. After this convulsion the boy vomited again, but did not show any other serious disturbance, playing as usual. Five days before admission twitching of the left side of the face was noticed. Before admission Dr. Gerster saw the patient in consultation with Dr. R. Abrahams. A profusely discharging, irregular wound, filled with ill-conditioned granulations, was found occupying the site of the anterior inferior angle of the right parietal bone. There was present a skin defect of the size of a 50-cent piece, caused by sloughing. The edges were undermined and the probe easily detected a depression of the bare bone. The diagnosis of compound fracture, complicated with a subdural or perhaps a brain abscess, was made. The same day the boy was admitted and operated upon. The original wound was enlarged and a depressed fracture of the antero-inferior angle of the parietal bone beneath the squamous portion of the temporal was found. When the depressed bone was elevated and removed, pus at once escaped from an abscess cavity one and three-quarter inches in depth, of about one ounce capacity, situated in the lower part of the ascending frontal and parietal convolutions, corresponding to the face centre. The abscess cavity was drained by tube and dressed dry.

During the week subsequent to operation the boy remained in fair condition. There were slight evening temperature elevations up to 101+°, and the abscess cavity drained freely; a hernia cerebri formed, and an attempt was made to control this by moderate pressure exerted through a celluloid plate.

November 1 to 14: The boy appeared dull at times and irritable, the abscess cavity did not drain as well as before, and the general condition seemed to be growing worse. *On November 14,* under anesthesia, a thorough exploration of the abscess cavity was made. A sinus was found leading from the abscess cavity directly inward through brain substance for about five inches, practically to the convexity of the brain on the left side. During this exploration the patient exhibited marked signs of embarrassed respiration and convulsive movements of both upper extremities. A drainage tube was inserted into the sinus and the wound dressed.

November 15 to 16: On these two days the temperature elevations were higher, 104.6 ; the boy vomited several times, general convulsions and unconsciousness set in, and the boy died on November 16 with all the symptoms of meningitis.

At autopsy a purulent basilar meningitis was found. There was a large abscess in the right temporo-sphenoidal lobe, extending forward into the frontal lobe and communicating with the middle horn of the lateral ventricle, which was distended with reddish, purulent material.

1899, vol. ii., page 803. *Tumor of Brain; Compressio Cerebri; Craniectomy for Relief of Tension; Death.*—Daniel T., 38 years old, was referred to the hospital by Dr. B. Sachs. In addition to the general symptoms of brain tumor, there was a history of gradual loss of eyesight and attacks of dizziness. There was marked diminution of power in the left upper and lower extremity; no ataxia or incoördination; left facial palsy was present. Examination of the eyes revealed no palsy of the muscles, an old left optic neuritis and retinitis proliferans, and an optic neuritis in the right eye. No vision in the left eye.

On admission, October 2, the patient complained of very severe cephalalgia, and during the week he was under observation in the hospital he was for long periods in stupor, with stertorous breathing and general convulsions.

October 10: Under chloroform anesthesia a craniectomy for relief of intracranial pressure was performed. A circular button of bone about 1½ inches in diameter was removed from the temporo-parietal region. The dura was found under considerable tension and pulsating. It was not incised. Exploratory aspiration of the brain revealed nothing. The lateral ventricle was then aspirated and its contained fluid slowly evacuated. The skin flap was replaced and sutured. Primary union was obtained, but the patient apparently derived little benefit from the operation. Three weeks later the symptoms of pressure were again manifest, and the patient succumbed with compression symptoms on November 6, 1899.

1899, vol. i., page 941. *Tumor of Pituitary Body.*

1899, vol. ii., page 113. *Traumatic Tetanus.*

1899, vol. ii., page 742. *Depressed Fracture of Vault of Skull; Fracture of Base; Craniotomy; Cured.*

1899, vol. ii., page 182. *Depressed Fracture of Skull; Concussion of the Brain; Operation; Meningitis; Death.*—Chas. F., 5½ years old, was admitted July 23 with a history of having fallen upon his head from a height of three stories. He was unconscious for a half hour after the injury, and since that time has been dazed and stupid.

On admission to the hospital the child was in a semi-stuporous condition. There was no paralysis of voluntary muscles—reflexes were normal. The pupils of both eyes did not respond to light; the left was dilated, the right small and regular; apparent blindness of both eyes. There was no bleeding from the nose, ears, or mouth, and no subconjunctival hemorrhage. The head was very large, the scalp edematous and abraded just to the right of the sagittal suture for a space of 2½ inches behind the coronal suture, and there was very evident pain on pressure of the upper part of head. No depression could be made out on account of the edema.

Immediate operation, a large antero-posterior flap being raised from the vault of the skull at the site of the abrasion. The right parietal bone was found to be depressed beneath the left, and there was also an irregular fracture of the occipital bone extending below the external occipital protuberance. There was no evidence of hemorrhage, the pulsation of the brain being normal. The depressed bone was raised, the flap replaced, suitable drainage inserted, and a dry dressing applied. The signs of compression were relieved by the operation, but meningitis developed and the child died July 25, 1899. (Lilienthal.)

1899, vol. i., page 778. *Jacksonian Epilepsy; Symptoms of Encephalitis; Exploratory Craniotomy; Cured.*—Jennie P., 15 years old, admitted March 29, 1899. Seven weeks before she had fallen down a flight of stone steps. Since this accident the patient had been unable to raise her right arm and there had been frequent attacks of tremor of right hand, which had extended and involved the whole right arm. During her stay in the hospital there were numerous attacks of typical Jacksonian epilepsy, beginning in the right arm, extending to right side of face and then to leg, consciousness being preserved during part of the attack. Besides these Jacksonian attacks, the patient had daily temperatures between 100° and 101°, and was becoming gradually more and more stupid. There was no vomiting, urine was negative, both fundi were normal, and there was no evidence of any acute inflammation of the middle ear. The increasing character of the cerebral symptoms, with the temperatures and the traumatic history, suggests the possible presence of a cerebral abscess, and accordingly, on April 4, 1899, *an exploratory craniotomy* was performed under $ChCl_3$ anesthesia. A bone flap was raised from over the arm centre on left side. There was no pulsation of the brain; aspiration in several directions from the arm centre withdrew only serum. The dura was incised, but nothing abnormal could be detected. The dura was closed, the bone flap replaced and sutured, suit-

able drainage and dry dressing. For several days following the operation the convulsions continued as before; there were slightly increased temperatures, 101.6° and 102.8°, and paralysis of the right side. *On April 10* the temperatures had subsided to nearly the normal, the general condition had much improved and the paralysis of right side was diminishing, and there had been no convulsions since *April 6*. The patient continued to improve, no convulsions occurred after April 6, the temperature became normal, the paralysis gradually improved, and the general condition became much better, the patient being discharged cured May 7, 1899.

1899, vol. ii., page 627. *Recurrent Trifacial Neuralgia; Extirpation of Gasserian Ganglion (Hartley-Krause); Recovery.* —Mechemia J., 46 years old, admitted August 18, 1899. He had suffered from neuralgia of the second and third branches of the fifth nerve, for the relief of which he had been operated upon in Russia two years before. His present attack was of three months' duration, the pain being especially confined to the area of distribution of the second and third nerves. The pain was so severe and constant, especially on swallowing, that the patient preferred to go without food rather than suffer the pain. Sleep was impossible.

August 30, 1899, under chloroform anesthesia, the skull was opened according to the Hartley-Krause method, by the electric bone drill. The wounded middle meningeal artery was secured with a suture. The raising of the temporo-sphenoidal lobe, so as to expose the ganglion and its branches, was attended with considerable venous hemorrhage, which was controlled by gauze tampons, very hot saline irrigation being ineffectual. The foramina rotundum and ovale were exposed, the second and third branches isolated and divided, their proximal ends traced backwards to the ganglion and, together with the latter, evulsed; the remains of the ganglion being destroyed by a sharp spoon. The ganglion was found to be very densely adherent to the dura. A small gauze drain was passed down to the bed of the ganglion, and brought out of the posterior angle of the wound, the latter being closed by suture. During the operation, which lasted one hour and twenty minutes, there had been no material change in the pulse or respiration. Immediate relief from the pain followed. The highest temperature was 100°, and the wound healed primarily. There was complete anesthesia of face and cornea. No ocular complications besides a conjunctivitis developed. The sense of taste was preserved on the right half of the tongue. The patient was able to eat and sleep well, and was discharged *cured September 27, 1899.* (Berg.)

1899, vol. ii., page 872. *Old Fracture of the Lateral Process of Eleventh Dorsal Vertebræ; Paralysis of Lower Extremities, Bladder, and Rectum; Laminectomy, with Removal of Lateral Process; Improved.*—Samuel U., 28 years old, was admitted to the hospital from the Montefiore Home in October, 1898. He had been perfectly well until one year previously, when he sprained his back by trying to lift up a quarter of beef weighing 240 pounds. The pain in the lower part of his back which followed this sprain was so severe as to compel him to stay in bed for a week; it then disappeared, the patient returning to his work, but it has since relapsed and remained constant. On admission there was a kyphotic prominence in the lower dorsal and upper lumbar region, and there was tenderness over eleventh dorsal vertebræ. There was no disturbance of sensations of touch, pain, or temperature. The gross motive power of lower extremities was considerably diminished, and the patient was absolutely unable to walk.

On November 7, 1898, a plaster jacket was applied.

During the following six months there were the indications of a progressive transverse myelitis at the level of the twelfth dorsal segment, and on May 5, 1899, an exploratory laminectomy was performed. The left transverse process of the eleventh dorsal vertebræ was found to be broken and jammed up under the lamellæ of the tenth vertebræ. The cord was aspirated at the level of the twelfth dorsal segment, but nothing was found. Suitable drainage and packing of the external wound, with dry aseptic dressing.

The patient reacted well from the operation, the wound gradually healed by granulation, and the transverse myelitis improved slightly. A double pyelonephritis developed, which improved under internal medication.

On October 8 examination revealed the following status: *Tactile sensibility* preserved down to the knees on the anterior surface. Pain sensibility preserved down to about three inches above the ankle joint. No hyperesthesia. Temperature sense preserved in the upper half of both thighs. Sphincters: Vesical and rectal control absent.

November 2, 1899: Discharged improved, as no longer a hospital case.

Operations on Thorax—21 patients, 3 deaths.

Resection of Ribs—19; 2 deaths.

	Totals.	Deaths.
For empyema	9	1
" **subphrenic abscess**	3	1
" **tuberculosis of ribs**	2	
Thoracoplasty for thoracic fistula	5	

	Totals.	Deaths.
Resection of sternum, costal cartilages, and ribs, mediastinal abscess	1	1
" of fifth costal cartilage for purulent pericarditis	1	

1899, vol. ii., page 427. *Tubercular Mediastinal Abscess due to Tubercular Disease of the Sternum, Costal Cartilages, and Ribs; Incision and Drainage; Subsequent Resection of Third, Fourth, and Fifth Costal Cartilages and Corresponding Half of the Sternum; Secondary Necrosis of the Sixth Costal Cartilage; Resection; Purulent Bronchitis; Pneumonia; Death.*—Isidor E., 67 years old, was admitted July 3, 1899, with a mediastinal abscess pointing in sixth costal space. This was incised and drained, and bare bone was to be felt along the anterior wall of the abscess cavity. When the abscess cavity had contracted and was covered by granulations, the diseased cartilages of the third, fourth, and fifth ribs, together with the corresponding half of the sternum, were removed. Considerable hemorrhage was encountered from the internal mammary artery, but this was controlled by hemostatic suture and packings. The patient developed a severe capillary bronchitis after the chloroform anesthesia, but recovered nicely therefrom. The wound gradually contracted and closed by granulations. During the process of healing the exposed cartilage of the sixth rib necrosed; this, together with the anterior one-third of the sixth rib, was removed under chloroform anesthesia. The patient this time developed a severe pneumonia and purulent bronchitis, from which he succumbed August 29, 1899. (Berg.)

Postmortem revealed a consolidation of the upper lobe of left lung, with edema of the right lung and purulent bronchitis, healed tuberculosis at the apices.

Mediastinum showed marked fibrous mediastinitis. The tuberculosis of the ribs appeared to be the primary cause of the affection. Bronchial glands moderately enlarged and pigmented.

Celiotomies—238 operations, 71 deaths.

By A. A. Berg, M.D.

Operations on stomach—17 operations on 15 patients, 8 deaths.

	Totals.	Deaths.
Celiotomy and gastrostomy (Witzel)	1	1
" " " (Kader)	3	1
" " " (Marwedel)	1	1
" and gastro-enterostomy for malignant obstruction of the pylorus	5	3
" and gastro-enterostomy preliminary to partial gastrectomy	1	

	Totals.	Deaths.
Celiotomy and pylorectomy for carcinoma	1	1
" " partial gastrectomy and duodenectomy	1	1
" " " "	1	
" and gastrorrhaphy for closure of gastrostomy fistula (Kader)	1	
Dilatation of esophageal stricture through a previous gastrostomy	2	

It would appear, from this résumé of the operations which were performed upon the stomach, that the mortality was much higher than is usually ascribed to these procedures. It would hardly be fair, however, to charge this high mortality to the operations, as will appear from the following considerations:

Of the five gastrostomies, three patients died, but none of these deaths can be attributed to the operation *per se*, as the patients were all in a wretchedly bad condition and succumbed, one of them after seven days, one after fourteen days, and one after two months, from the exhaustion dependent on the malignant disease. All these patients had rallied nicely from the operation, and their wounds had healed per primam.

Of the five gastro-enterostomies, one died twenty-one days after the operation, from exhaustion; here again the wound had healed, but the operation had been resorted to, too late to afford the patient any prolongation of life. Of the two other deaths, one was from shock in a patient with extensive malignant disease of the gall bladder and pylorus, and one from peritonitis.

Of the three partial resections of the stomach, one recovered; of the two deaths, one occurred from cerebral embolism thirteen days after operation, the button having been passed and the patient being convalescent at the time, and the other occurred one day later from shock.

In commenting upon the material which was afforded for operation, it is only just to note that all the patients were in an advanced state of cachexia and inanition, and operation was performed only at the urgent demand of the patients that some palliative measures of relief be accorded to them.

1899, vol. ii., page 445. *Advanced Carcinoma of Esophagus at its Lower Extremity; Cachexia; Gastrostomy (Marwedel); Death after fourteen days, from Exhaustion.*—Hyman A., 42

years old, had been in the hospital two months before his readmission on August 19, 1899. Operation (gastrostomy) had been urged at that time for an increasing malignant stenosis of the esophagus, but this was declined by the patient. On his readmission the patient was very weak and emaciated, had been unable to swallow anything besides liquids, and this only with great pain. There were enlarged glands in the axillæ and groins, and metastases in the lungs. The patient begged that the operation which had been suggested to him be performed, and accordingly, on August 20, a gastrostomy (Marwedel) was performed under local anesthesia (Schleich No. 2). The stomach was markedly contracted. The patient bore the operation well and was fed immediately after. During the six days following the patient did very well and said he felt much stronger. The wound had healed per primam and the temperature and pulse were normal. On the sixth day some leakage from the stomach opening was noticed; this was found to be due to a parting of the highest sutures of the canal in the stomach wall, and was caused by the violent coughing of the patient. The sutures were reapplied and the leakage controlled, but the patient did not recover his strength and died September 2, 1899. (Berg.)

1899, vol. ii., page 767. *Carcinoma of Cardiac End of Stomach; Stricture of Esophagus; Cachexia; Gastrostomy (Witzel); Death seven days later from Inanition.*—Minnie C., 63 years old, admitted October 5, 1899, with an advanced stenosis of the esophagus, which had been getting progressively worse for four months. She was much emaciated and was in very poor general condition. October 10, 1899, gastrostomy (Kader). Patient was fed through the tube at once. The wound healed per primam, the temperature and pulse rate were normal, but the patient did not recover her strength and died October 16, 1899.

1899, vol. ii., page 845. *Carcinoma of Cardiac End of Stomach; Stricture of Esophagus; Gastrostomy; Cachexia; Death two months later.*—Jacob S., 60 years old, was admitted August 2, 1899, with symptoms of a malignant stenosis at the cardiac end of the stomach. The patient was cachectic and there were nodules to be felt on the peritoneum. August 29, gastrostomy (Kader). The patient rallied nicely after the operation, and seemed to regain his strength for a time, but then relapsed again, succumbing with general carcinomatosis on November 1, 1899. (Moschkowitz.)

1899, vol. ii., page 5. *Carcinoma of Pylorus with Stenosis; Gastro-enterostomy (Murphy Button); Peritonitis; Death.*—Louis O., 52 years old, admitted June 2, 1899. He suffered

continuously from vomiting and had lost considerable flesh. Examination of stomach contents showed free HCl 12, total acidity 36, no lactic nor butyric acid. While under observation in the hospital he lost considerable weight and vomited continually. No tumor was to be felt.

June 27: Exploratory laparotomy. A tumor encircling the pylorus was found; the retroperitoneal glands were enlarged. The pylorus was freely movable and the case seemed a favorable one for resection, but the patient's condition under the anesthesia would not permit it, so a gastro-enterostomy (posterior) with Murphy button was performed.

June 28-29: Patient continued to vomit bilious material, the temperature varied between 100° and 101+°, the abdominal walls became rigid and tender, and death from peritonitis occurred on July 1, 1899.

1899, vol. ii., page 29. *Carcinoma of Pylorus with Stenosis; Gastro-enterostomy (Murphy Button); Death twenty-one days later, Exhaustion.*—Harry S., 33 years old, admitted June 6, 1899, with history of frequent emesis, which was becoming gradually worse, marked emaciation. On examination there was a palpable tumor in the epigastrium and dilated stomach. General condition very poor. Test meal showed no free HCl, total acidity .07 per cent., lactic and butyric acids.

June 13: Celiotomy. Pylorus was found to be the seat of a hard, nodular tumor which was freely movable. Radical extirpation seemed feasible, but the patient's wretched general condition under the anesthesia forbade such a procedure. Gastro-enterostomy posterior by the aid of Murphy's button was performed. Patient bore the operation poorly and had to be freely stimulated. There was some vomiting for the first two days after the operation; this ceased after washing out of the stomach; the patient was able to retain nourishment given by mouth after the third day; the temperature and pulse were normal, the bowels moved on the third day, and the patient commenced to regain some strength. June 24: After removing the abdominal sutures, the wound edges immediately parted, there having been no sign of repair. The wound was immediately resutured. On June 28 Murphy button was passed. On July 1 the abdominal sutures were again removed, repair having now taken place. The patient's general condition, which had improved for a time, now commenced to grow gradually worse, and on July 4 death from exhaustion occurred.

1898, vol. ii., page 1039. *Carcinoma of Gall Bladder and Pylorus; Pyloric Stenosis; Gastro-enterostomy; Death from Shock six hours later.*—Walter B., 49 years old, had been in the hospital four months before his readmission, November 27,

1898, when he was thought to have had syphilis of the liver. Since leaving the hospital he had lost weight, become deeply jaundiced, and had coffee-ground vomiting. The liver was enlarged about one hand's breadth, and underneath it was a hard, tender mass. Enlarged glands in the neck and groin and axillæ. Test meal showed free HCl 18, trace of lactic acid; stomach capacity was eighty ounces.

December 18: Celiotomy. A large tumor involving the pylorus, gall bladder, gall ducts, and liver was found. A posterior gastro-enterostomy was performed with Murphy button. The patient was collapsed at the end of the operation, and, in spite of energetic stimulation, died of shock at 10:30 P.M.

1899, vol. i., page 1097. *Carcinoma of Pylorus; Pylorectomy; Gastro-entero-anastomosis; Death.*—Adolph C. was admitted to the medical service June 15, 1899. His history extended over a period of four months, during which time he suffered from epigastric pain, belching of gas, no vomiting. In the epigastrium was a distinct resistance, with tenderness to palpation. The stomach was not enlarged.

June 23: Celiotomy, pylorectomy, anastomosis. Median incision. The pylorus was found occupied by a tumor which extended along the lesser curvature for five inches and two inches along the greater. There were no adhesions and no apparent glandular involvement. The duodenum was divided one and one-half inches from the pylorus and the distal end closed by three layers of Lembert sutures. This latter was rather difficult on account of the brittleness of the tissues and the depth of the viscus. The greater and lesser omenta were then divided between two sets of ligatures, and the stomach cut through between two clamps, well beyond the carcinomatous tissue. The clamp holding the proximal end of this viscus slipped, but the operative field was not soiled by the stomach mucus. The proximal end of the stomach was then closed by a row of Czerny and two rows of Lembert sutures, and then a posterior gastro-jejunostomy was established with the aid of the Murphy button. There was considerable tension on the anastomosis. At this stage of the operation the patient's pulse failed, so a hasty toilet was made, an intravenous infusion given, and the abdominal wound closed with drainage.

Operation lasted two and one-half hours. The hemorrhage was scanty, but the operation was rendered difficult on account of the brittleness of the tissues and the deep situation of the duodenum.

The tumor was a nodular, ulcerated mass involving the pylorus and lesser and greater curvatures. Not much stenosis of the pyloric orifice.

Pathological diagnosis: *Carcinoma.*

The patient, although freely stimulated both per rectum and intravenously, did not react and died about eighteen hours later.

Examination through the wound: Peritoneum pale; no exudate. The line of gastric suture was firm. In the duodenum was a very small leak on the posterior surface, but the pathologist could not state whether his manipulation did not cause this. The Murphy button was in good position. The lesser curvature had been removed up to 1½ inches of the cardia.

1899, vol. ii., page 16. *Carcinoma of Pylorus; Partial Gastrectomy and Duodenectomy; Gastro-jejunostomy; Cerebral Embolism thirteen days later; Death.*—Peter L., 66 years old, a sturdy and well-nourished man, had suffered for one year previous to his admission on June 16, 1899, from gastric pain and soreness and feeling of marked gastric distension after eating; no vomiting. Had lost some weight. There was a hard, irregular mass in the epigastrium. A test meal showed the presence of free HCl, no butyric nor lactic acid. No gastric stagnation. Urine acid, 1028, no albumin, hyaline casts.

June 19: Celiotomy. The pyloric tumor was found to be free and movable and there were no enlarged glands to be felt. Radical resection of the growth was considered feasible and proceeded with. The duodenum in its middle portion, above the papilla of Vater, was divided across and its distal end closed by several rows of Lembert sutures. After deligation and division of the gastro-hepatic and gastro-colic omenta, the stomach was divided at its proximal one-third, and the proximal end closed by several rows of Lembert sutures. A posterior gastro-jejunostomy with Murphy's button was established. The tumor mass was then extirpated, there being some hemorrhage from the superior pancreatico-duodenal artery, which was easily controlled by tampons. The external wound closed but for a small gauze drain down to the head of the pancreas, where there was still some oozing. The carcinoma involved the upper first part of the duodenum and about half of the stomach, and the pyloric orifice was stenosed to the diameter of a lead pencil.

June 20: The patient bore the operation very nicely. His pulse the next morning was 88, temperature 100°. There was no vomiting, and fluid nourishment was given and retained after twenty-four hours. The urine contained considerable albumin and casts. Temperature later in the day rose to 102°.

June 21: The patient was doing very nicely, the temperature and pulse were normal, and considerable fluid nourishment was taken.

June 25: The wound was dressed and looked well. The packing was renewed. The general condition was better.

June 29: The patient passed a restless night; his pulse and temperature were normal, the wound looked well. Toward evening the patient had become very restless, even delirious at times. This restlessness subsided the next day and the patient again appeared well.

July 1: The restlessness and delirium returned; the patient was taking large amounts of nourishment by mouth; the bowels had moved daily since the third day; the wound looked well; there was a slight milky discharge from the drainage aperture.

July 2: The temperature, pulse, and respiration were normal. At 9:30 A.M. the wound was dressed and looked well, the milky discharge appeared less. About 1:15 P.M. the patient suddenly sat up in bed, swayed from side to side, and fell forward unconscious. No reaction from vigorous stimulation.

On postmortem, the button was still in place. The stomach and duodenal stumps had firmly healed. There was no perforation or ulceration of the stomach. No complete postmortem allowed.

1899, vol. i., page 24. *Carcinoma of Pylorus; Partial Gastrectomy; Gastro-jejunostomy; Recovery.*—Agnes B., 35 years old, admitted December 14, 1898, a private patient of Dr. Van Arsdale, had suffered from incessant eructations and vomiting for four years, which had been growing worse of late. There was a nodular, movable tumor, about the size of an egg, in the epigastrium, and the stomach much dilated. The general condition was fair.

December 16: Celiotomy. The stomach was found to be dilated and the entire pylorus the seat of a hard, nodular tumor. A gastro-jejunostomy posterior was performed with suture and the abdominal wound closed. After the patient had rallied from this operation, on December 24, the abdominal sutures were removed and the wound reopened. The anastomosis was perfect and resection of the growth was proceeded with. The duodenum was first freed and divided between two clamps at the junction of the first and second parts. Considerable hemorrhage was encountered from the superior pancreatico-duodenal artery, this being controlled by clamps. The gastro-hepatic and gastro-colic omenta having been deligated and divided, the stomach was cut through in about its middle. The duodenal and stomach openings were closed by three rows of Lembert sutures. *Abdominal wound closed.* The patient was much collapsed during the operation, and had to be infused intravenously. The operation lasted two and three-quarter hours. The patient rallied nicely from the operation, passed a fairly comfortable night, and took and retained fluid nourishment by mouth after twenty-four hours. The bowels moved

December 26 by enema, and by calomel and salines on December 27. The temperature and pulse were elevated for the first ten days, the former never higher than 102°, the latter very much accelerated at first, but gradually becoming normal. The wound was dressed December 28. All the stitch holes were suppurating and there was a foul discharge with alcoholic odor. This became very profuse; it could not be proven chemically to be either gastric or pancreatic ferments. A persistent diarrhea also developed, but this yielded to treatment. Gradually the discharge ceased, the abdominal sinus closed, the patient regained strength and was discharged February 17 cured. After leaving the hospital, the abdominal wound opened at one point and discharged the same material as before. There was gradual emaciation and death five months later. (Van Arsdale.)

INTESTINAL OPERATIONS—23 cases, 8 deaths.

	Totals.	Deaths.
Celiotomy for intestinal obstruction due to post-appendicular adhesions; diffuse peritonitis	2	
" for intestinal obstruction; diffuse peritonitis	1	1
" " volvulus	1	1
" " intussusception	2	
" for perforation of a tubercular ulcer; diffuse peritonitis, enterorrhaphy	1	1
" and left inguinal colostomy for imperforate anus	2	
" for carcinoma of sigmoid flexure; left inguinal colostomy	1	1
" and resection of colon, cecum, and ileum, entero-colostomy for papillary adenoma of cecum	1	
" and resection of cecum, ileum, and ascending colon for carcinoma; anastomosis	1	1
" for carcinoma of cecum; pericecal abscess, drainage	1	1
" for carcinoma of sigmoid; pericolic abscess, drainage	2	1
Closure of fecal fistulæ.		
After enterostomy for intestinal obstruction	1	
" " " relief of intestinal distension	2	
" inguinal colostomy	1	
" jejunostomy	1	1
" appendicitis	3	

The high percentage of mortality in the above operations is to be explained by several facts. *Firstly*, three of the fatal cases had a diffuse peritonitis at the time of operation, to which complication death was due; *secondly*, two of the three

deaths in patients suffering from carcinoma of the intestine were due to the exhaustion dependent upon the malignant disease, and occurred a considerable time after the operation. The third death was of a patient who demanded to be given the chance for radical cure, slim though it was, and who, as had been anticipated, succumbed to the shock of the operation.

1899, vol. i., page 395. *Volvulus; Intestinal Obstruction; Celiotomy; Reduction; Death.*—Hyman F., 14 months old, was admitted in an almost comatose condition, with a history of obstruction and vomiting of three days' standing. The child had a diffuse bilateral broncho-pneumonia. Immediate celiotomy. The large intestine was found to be much distended up to the sigmoid flexure, where a distinct, sharp angulation of the bowel was noticed. Beyond this the intestine was collapsed. The angulation was relieved, the cecum incised to permit escape of its contents and immediately sutured. Gauze drainage. The collapsed child died soon after operation. (Lilienthal.)

1899, vol. ii., page 829. *Ileo-cecal Intussusception, with Complete Intestinal Obstruction for five days; Celiotomy; Reduction; Cured.*—Morris P., 17 years old, was admitted in a fair general condition, September 30, with a history of acute intestinal obstruction of five days' standing. There was an indefinite sense of resistance over the lower part of the left hypochondriac and inguinal regions, suggesting a fecal accumulation. On admission the rectal examination was negative, but after the administration of calomel and salts a large, characteristic mass of invaginated intestine was to be palpated per rectum. Immediate celiotomy. The sigmoid, descending and distal two-thirds of the transverse colon was found to be distended with a mass of invaginated intestine consisting of the hepatic flexure, ascending colon, cecum, and about eighteen inches of the ileum. Efforts at reduction by taxis were ineffectual on account of numerous peritoneal adhesions between the intussusceptum and intussuscipiens. After these were separated, the reduction by taxis, aided by water pressure in the rectum, was accomplished. As the intestinal integrity, especially of the cecum, seemed to have been impaired by the long strangulation, and sloughing was feared, the cecum was protected with gauze packings and stitched to the lower angle of the wound. The bowels moved on the second day. Uninterrupted recovery. (Brewer.)

1899, vol. i., page 512. *Papillary Adenoma of Cecum; Resection of Colon; Entero-colostomy; Recovery.*—Ricke F., 54 years old, was admitted January 30, 1899, in a cachectic condi-

tion. For five weeks before admission the patient had suffered from abdominal pain and attacks of vomiting. The pain was chiefly confined to the right iliac fossa, where a tender, resistant mass was to be felt. No glandular enlargement could be made out.

February 3, 1899: Celiotomy. Incision over the site of the tumor exposed the cecum, surrounded by omentum, small intestine, and ascending colon, which were densely adherent to it. After separation of these adhesions, a tumor mass could be felt occupying the wall of the cecum. The ascending colon as high as the hepatic flexure, and the ileum, were surrounded by gauze packings and the ileum and transverse colon cut across. The end of the ileum was then implanted laterally by means of a Murphy button into the transverse colon, the end of the colon being closed by two rows of silk Lembert sutures. The whole ascending colon, cecum, appendix, and a few inches of the ileum were then resected. A protective gauze drain was passed down to the site of the anastomosis and the abdominal wound closed.

Patient was in pretty bad condition immediately after the operation, but rallied under active stimulation. February 5: The patient's general condition was improved and some flatus was expelled. On February 15 the Murphy button was passed. The stitch holes in the abdominal wall suppurated and retarded convalescence, which otherwise was uneventful, the patient being discharged *cured,* in excellent general condition, on April 2, 1899.

1899, vol. ii., page 136. *Carcinoma of Cecum; Resection of Cecum, part of Ascending Colon, and portion of Ileum; Anastomosis; Death from Shock.*—Abraham S., 68 years old, intensely cachectic and manifesting the signs of advanced senility, was admitted April 14, 1899. For one year he had suffered pain on the right side, frequent diarrheal movements and sensation of abdominal distension, with considerable emaciation. In the right iliac fossa was to be felt a very tender, resisting mass. At the urgent request of the patient that something radical be done for him, he was given the chance that a radical removal of the growth would afford. Accordingly, on June 16, 1899, he was celiotomized. Incision in the right iliac region over site of the tumor, which was found to involve the cecum, the latter being adherent to the omentum and parietal peritoneum. After the customary isolation of the intestine, the ileum and transverse colon were divided and an end-to-end anastomosis by means of the Murphy button was performed between the proximal end of the ileum and the distal end of the transverse colon. The excluded portion of the intestine was then excised,

the posterior parietal peritoneum corresponding to the site of the cecum being so densely adherent to the tumor mass that it had to be taken along with the new growth. Gauze drainage and suture of the abdominal wound.

The patient did not react well from the operation, his pulse gradually weakened, and in spite of free stimulation, death occurred about twenty-four hours later. (Lilienthal.)

1899, vol. ii., page 731. *Carcinoma of Cecum; Pericecal Abscess; Incision; Drainage of Abscess; Cachexia; Death from Exhaustion.* Morris S., 62 years old, was sent to the hospital September 19 with the diagnosis of an acute appendicitis. The patient claimed to have been well until nine days before, when he commenced to suffer with severe general abdominal pains, which became localized in the right iliac fossa after four days. The patient had had no chills or fever, no vomiting, and his bowels had moved daily; but claimed to have emaciated considerably since the onset of his illness. On admission to the hospital his temperature, pulse, and respiration were normal. In the right iliac fossa was a hard, irregular, tender mass, about the size of an orange, firmly attached to the iliac fossa. A diagnosis of new growth of the cecum, with a possible pericecal abscess, which latter gave rise to the recent acute symptoms, was made. September 23, 1899, laparotomy, Kammerer's incision. The anterior parietal peritoneum was adherent to a dense mass which occupied the iliac fossa and extended downwards into the pelvis. There were evidences of a fresh adhesive peritonitis which bound the coils of the ileum to the cecum, colon, and omentum. The tumor mass was found to involve the caput coli and distal six inches of the ileum, and was densely adherent to the posterior parietal peritoneum. While separating this tumor from its adhesions to the posterior parietal peritoneum, an abscess cavity was opened into containing about two ounces of thick, very fetid pus. Further manipulations had to be suspended, the abscess cavity was drained, and the abdominal wound partly sutured. The patient bore the operation very well, the temperature and pulse remaining practically normal. The bowels moved on the third day, but there continued to be a fecal discharge from the wound. The general condition of the patient grew continually worse, marked cachexia developed, and the patient died of exhaustion on October 8, 1899. (Berg.)

1899, vol. ii., page 592. *Carcinoma of Sigmoid; Pericolic Abscess; Incision; Drainage; General Peritonitis; Death.*—William M., 45 years old, had suffered for one year past with abdominal pain which was sometimes very intense, obstinate constipation, and occasional vomiting. The pain and constipa-

tion were not constant at first, but during the past two months the patient believed his symptoms were worse, as his bowels only moved about once a week, and then the stools were flat and ribbon-like. On admission, September 21, 1899, he was much emaciated; two nodular masses could be felt in the abdomen, one midway between the umbilicus and the left anterior superior spine, and the other just above and to the right of the umbilicus. The abdomen was markedly distended, the liver flatness reaching only to the sixth space.

September 22: Laparotomy. Median incision below the umbilicus. Evidences of a fresh adhesive and serous peritonitis. The ascending colon and small intestines much distended. While separating adhesions which surrounded the sigmoid flexure of the colon, there was an escape of pus into the free peritoneal cavity. The pus came from an abscess cavity connected with the sigmoid. The abscess was drained, a loop of distended intestine brought up into the wound, fixed to the abdominal wall, and opened. *September 23:* The patient manifested the symptoms of a diffuse peritonitis, from which he succumbed that day. (Wiener.)

APPENDIX VERMIFORMIS—144 cases, 42 deaths.

GROUP I. CELIOTOMY; EXCISION OF APPENDIX; NO PERITONITIS; CLOSURE OF WOUND—50 cases, 3 deaths.

	Totals.	Deaths.
For acute or subacute, non-perforative appendicitis	26	[1]2
" very recent perforative appendicitis (one case perforating into the cecum)	5	
" chronic, non-perforative appendicitis	9	[2]1
" " obliterating appendicitis	4	
" empyema of appendix	6	

GROUP II. CELIOTOMY; CIRCUMSCRIBED OR DIFFUSE PERITONITIS; SEPSIS—65 cases, 36 deaths.

	Totals.	Deaths.
A. Perforative appendicitis.		
(a) Appendix removed.		
For acute perforative appendicitis, circumscribed abscess	25	6
" " " " diffuse peritonitis	[2]5	21
" acute gangrenous appendicitis; cecum gangrenous; entero-colostomy	1	1
(b) Appendix not removed.		
In ruptured abscess; diffuse peritonitis; peritoneal drainage	5	5
In ruptured abscess; perforation of intestine; diffuse peritonitis, peritoneal drainage	1	1

[1] Deaths due to septicemia
[2] Death due to strangulation of the intestine by the deeper layers of the wound where the sutures had parted.

	Totals.	Deaths.
B. Non-perforative appendicitis; diffuse peritonitis	7	1
" appendicitis; hemorrhagic pyosalpinx; diffuse peritonitis	1	1

GROUP III. CELIOTOMY; CIRCUMSCRIBED APPENDICULAR ABSCESS; WELL-DEFINED TUMOR, APPENDIX NOT REMOVED--29 cases, 3 deaths.

	Totals.	Deaths.
A. Ileo-inguinal route.		
Parker's operation; incision and drainage	12	
Secondary abscess; " " "	2	
" " fecal; incision and drainage	1	
B. Lumbar route.		
Retroperitoneal appendicular abscess, incised and drained; secondary pyelophlebitis and multiple liver abscesses	1	1
C. Rectal route.		
Incision and drainage	4	
Miscellaneous.		
Appendectomy in other than appendicitis cases (one in hernial sac)	6	
Secondary operation for removal of silk ligature around the stump of the appendix, causing persistent sinus	1	
Acute catarrhal appendicitis; *pyelonephritis* (see Kidney report)	1	1
" perforative appendicitis; abscess; gangrene of broad ligament	1	1

The appendicitis material during the past year was again very abundant. As has been the custom heretofore, operation was never declined in any case, however desperate, unless the patient was actually dying. To this principle of action is to be ascribed our high mortality in the second group of cases. Many of these patients were indeed desperate when admitted to the hospital; but the experience that even some of these cases recover after operation, whereas under expectant treatment almost all will die, leads us to adopt the above plan of treatment. It will be seen, by reference to the first group of cases, that three patients in whom the disease was entirely limited to the interior of the appendix, there being no peritonitis or other complications, and in whom the abdominal wound was entirely closed, succumbed to the operation, two of acute septicemia, and one from strangulation of the omentum and intestine. In

this last case some of the deeper buried sutures gave way, and the omentum and intestine were protruded into the gap and strangulated. It is important to take cognizance of such fatal cases in considering the prognosis of the interval operation, for they indicate that even the simple cases are not without their risks. In spite of the greatest precaution to attain perfect asepsis, infection at times may creep in, or other accidents may frustrate the surgeon's object.

A complete report of the appendicitis material during the past three years will appear in the future.

1899, vol. i., page 87. *Acute Gangrenous Appendicitis; Gangrene of Cecum and Colon; Removal of Gangrenous Intestine; Entero-colostomy; Sepsis; Death.*—Louis R., 40 years old, was admitted January 3, 1899. His illness, of four weeks' standing, began with severe pain in the right iliac region and diarrhea. The pain diminished, but the diarrhea persisted. No chills. Some fever. In the right iliac region was a distinct tumor, painful, tender, and movable. Rectal examination was negative. The diagnosis lay evidently between a new growth of the caput coli, possibly perforated with a localized abscess, the latter accounting for the recent acute symptoms, and an appendicitis.

January 6, 1899: Celiotomy. On opening the peritoneum a large mass could be seen which occupied a position slightly to the right side of the median line and midway between the symphysis and umbilicus; protective packings. The mass was found to be made up of adherent omentum and several coils of the small intestine and caput coli surrounding a swollen, perforated, and gangrenous appendix. The latter was removed, and on further examination the caput coli was found to be gangrenous where it had been adherent to the appendix. The removal of these necrotic tissues left so large an opening into the bowel that it was deemed advisable to exclude this portion from the intestinal current, so an entero-colostomy with Murphy's button was performed, the ileum being united to the upper part of the ascending colon. Closure of the wound with drainage.

The patient rallied well from the operation; no peritonitis developed; the bowels moved per rectum on the second day. There was considerable foul discharge from the drainage opening leading down to the cecum. Considerable sloughing tissue, probably portion of the intestine, was removed on the seventh day. On January 12, six days after operation, patient com-

menced to show signs of sepsis. The temperature was slightly elevated, but the pulse was 140. On January 14 there was a profuse hemorrhage from the gangrenous portion of the bowel, and this was followed a few hours later by a second hemorrhage. The patient collapsed and died January 15, 1899.

LIVER—11 operations on 9 patients, 6 deaths.

	Totals.	Deaths.
Exploratory celiotomy for gumma	1	
" " " secondary carcinoma	3	2
Celiotomy for abscess	5	4
For abscess; posterior route, combined with the resection of one or more ribs	2	

Of the five cases of liver abscess, the suppurative process was multiple in three and single in two. In two the abscesses were secondary to a colitis, in one it followed an osteomyelitis, and in two the cause could not be determined. In two patients the abscesses had already ruptured into the subphrenic spaces, one into the right and one into the left. In these two cases the abscesses had at first been drained by the posterior route, with the resection of several ribs; but a subsequent abdominal incision had to be made to establish better drainage. The operation was always performed in one stage, the general peritoneal cavity being protected by gauze tamponade, and the liver fixed by sutures to the abdominal wall. All three cases of multiple abscesses and one of the cases of single abscess succumbed.

Of the four cases of liver tumor, exploratory celiotomy was performed, partly to verify the diagnosis and partly in the hope that something might be done to alleviate the patients' sufferings. Two of them, in whom carcinoma was present, died, one of shock immediately, the other of exhaustion sixteen days after operation.

The histories of all these patients can be found in Surgical Records, vol. i. and vol. ii., 1899, as follows:

Liver Abscess.—Vol. i., page 26. Vol. i., page 161. Vol. i., page 738. Vol. i., page 754. Vol. ii., page 830.

Gumma of Liver.—Vol. ii., page 1056.

Carcinoma of Liver.—Vol. i., page 578. Vol. i., page 1030. Vol. ii., page 318.

1899, vol. ii., page 1056. *Exploratory Celiotomy; Liver Indurated in Spots; Specimen obtained for Pathologist; Closure of Wound; Recovery.*—Benj. L. had been operated on about a year before in one of the metropolitan hospitals. He felt well following this operation until eleven days before his admission, on October 25, 1899, when he had a slight chill, with fever, and very severe pain in the right hypochondrium. This pain persisted. On admission the liver was found to be enlarged, there was marked pain and tenderness over it, and some friction râles on its upper surface. The urine was negative. On November 2 the patient had another chill and a temperature of 100°, otherwise the temperature during the time he was under observation was normal. November 6: Exploratory laparotomy, the sixth, seventh, eighth, and ninth costal cartilages in the mammary line being resected, so as to expose the upper surface of the liver, the diaphragm being divided along the line of section. The liver was pale and very dense in spots and aspiration of its substance yielded negative results. A portion of the dense area was removed for pathological examination and the wound packed. The pathologist reported the specimen to be composed of chronic inflammatory tissue, probably syphilitic. The wound healed by granulation, the patient did well under antispecific treatment, and was discharged November 29 improved.

1899, vol. ii., page 161. *Ulcerative Colitis; Multiple Abscesses of the Liver; Celiotomy; Drainage; Sepsis; Death.*—Abraham A., 35 years old, admitted July 16, 1899, with a colitis of six days' standing. Four days before he had severe pain in the right hypochondrium, which has persisted; no chills; slight cough and expectoration.

On admission the liver was enlarged, painful and tender, the temperature 103.6°; urine acid, 1020, contained albumin and hyaline casts.

From July 16 to July 20 the temperature continued high, 103° to 104°, and the pain and tenderness over the liver persisted. July 21: Celiotomy. The gall bladder and ducts were normal. An abscess cavity about one inch from the surface, in the right lobe of the liver, was found. Although the liver was aspirated in several other directions, no other foci of pus could be detected. The abscess was drained, the liver fixed to the abdominal wall, and the outer wound packed. The patient collapsed at the end of the operation. In the evening there was a profuse hemorrhage from the rectum, and, in spite of free stimulation, he died on July 22.

Postmortem examination revealed a marked ulcerative colitis, the bleeding from the ulcers having caused the rectal hem-

orrhage. The colon was filled with blood. In the liver there were a number of abscesses varying in size from a walnut to an egg, and containing greenish pus. (Lilienthal.)

1899, vol. i., page 830. *Colitis; Multiple Abscesses of Liver; Right Subphrenic Abscess; Transpleural Drainage; Subsequent Celiotomy to relieve Retention of Liver Abscess; Sepsis; Death.*—Harry W., 37 years old, admitted April 17, 1899, said he had suffered from severe pain in the right side for eleven weeks, with low fever and occasional night sweats. Two weeks before, diarrhea with blood and mucus in the stools set in. Examination showed marked areas of consolidation and cavity formation in both lungs, and fluid in the right pleural cavity, the latter proving on aspiration to be brownish, purulent fluid. Liver enlarged and tender. During his stay in the hospital his temperature was but slightly accelerated, 100+°.

May 4: Resection of eighth, ninth, and tenth ribs, pleural drainage, incision of diaphragm, drainage of subphrenic abscess.

After operation the patient's condition remained good for several days, but the abscess cavities were not well drained; marked septic intoxication developed, and although a celiotomy with anterior and through-and-through drainage of the abscess cavities was established, the patient succumbed to sepsis May 13.

1899, vol. ii., page 754. *Colitis; Abscess of Liver; Peritonitis; Intraperitoneal Abscess; Sepsis; Death.*—Nashman S., 36 years old, admitted October 2, 1899. Illness had lasted five weeks; complained chiefly of fever, pain in right hypochondrium. Examination revealed a very large liver, extending almost to the iliac crest from the fourth costal space, painful and tender. Temperature 103+°. October 3: Laparotomy at outer edge of rectus muscle. The liver was adherent to the abdominal wall at one point where the abscess was pointing. The abscess was incised at this site and a large amount of pus was evacuated. While evacuating the abscess, the liver tore loose from the abdominal wall and the general peritonal cavity was soiled with the pus. The peritoneum was cleaned and drained. The abscess was drained.

The patient developed a subacute type of purulent peritonitis. A secondary intraperitoneal abscess formed in the vicinity of the liver, which was incised and drained, but general sepsis developed and the patient succumbed October 12, 1899. (Brewer.)

Autopsy showed an *ulcerative colitis; abscess of liver; general purulent peritonitis.*

GALL BLADDER AND DUCTS—20 operations on 18 patients, 3 deaths.

	Totals.	Deaths.
Celiotomy for cholecystitis, non-calculous	2	
" for obstruction to the common bile duct, due to Addison's disease, cholecystotomy	1	
" for cholelithiasis, cholecystotomy and drainage	6	1
" for cholelithiasis, empyema of gall bladder; cholecystotomy and drainage	7	
" for cholelithiasis, empyema of gall bladder, gangrene of mucous membrane of gall bladder; cholecystotomy and drainage	1	1
" for cholelithiasis, empyema of gall bladder; cysticotomy and drainage	2	1
" for closure of biliary fistula	1	

The material which presented itself for operation during the past twelve months was somewhat richer than in the foregoing year, and, with the exception of impacted stones in the choledochus, every variety of complication attending cholelithiasis was encountered. Diagnostically stress was laid *firstly* upon establishing the presence of stones in the gall bladder or ducts, and, *secondly,* the exact site of these stones. Usually the first fact was easily determined, either from the anamnesis or from our examinations of the stools; twice, however, the existence or non-existence of stones in the biliary system could not be decided upon, although the clinical symptoms pointed to their presence. (See Histories, 1899, vol. i., page 841; vol. ii., page 836.) In these two cases exploratory celiotomy showed merely an acute cholecystitis without calculi. In locating the stones we were guided by the following considerations:

(1) The presence of jaundice and the type of the latter, whether it was continuous or intermittent or only transient.

(2) The *presence* of a *tumor* of the *gall bladder.*

(3) The size of the liver.

As to whether there was an empyema of the gall bladder or a cholangitis, the temperature chart, the general condition of the patient (whether septic or not), the size of the liver, and the presence or absence of pain were valuable aids in arriving at the proper conclusions. The greatest stress was always laid upon a detailed anamnesis.

As regards the technique of the operation, it was by preference performed in one sitting. The abdominal incision was, as

a rule, made longitudinally through the right rectus muscle, and if more space was needed a transverse incision was added to this one. The peritoneal cavity being opened, the adhesions of the omentum and neighboring viscera to the biliary system were carefully divided and then a thorough examination by palpation of the ducts and gall bladder was made. The general abdominal cavity was then carefully protected by gauze packings, the site of the calculus isolated and attacked.

When cholecystotomy was performed, the bladder was first emptied of its contents by means of an aspirating syringe, then opened, the stones extracted, and the gall bladder drained. Recently the procedure suggested by Kehr, by which the opening into the gall bladder was inverted, cone-like, around the drainage tube by means of several layers of purse-string sutures, was adopted with very satisfactory results. The gall bladder was then anchored to the abdominal wall, the opening in the gall bladder protected by gauze, and the rest of the abdominal wound closed by suture. The duration of drainage of the gall bladder depended altogether on the condition of its contents and the character of the bile. In one case only did a biliary fistula remain, which necessitated a second operation for its closure. The procedure of Kehr, mentioned above, has been found to be followed by a much more speedy closure of the gall bladder than was the case with the old method of operation. In one patient a secondary operation (vol. ii., page 262) had to be performed for the removal of a stone in the cysticus, which had been undetected at the time of the first operation. Three deaths occurred in this division of our work, one from a septic cholangitis, one from a broncho-pneumonia due to anesthesia, and one from general septicemia.

1899, vol. ii., page 300. *Obstruction of the Choledochus, associated with Addison's Disease; Exploratory Celiotomy; Recovery.*—Abraham S., 36 years old, admitted to the medical service May 16, 1899. His chief complaint was an ever-increasing jaundice for the past five months. His stools were clay-colored, and urine contained much bile. Examination showed liver and spleen somewhat enlarged and the glands in the groin likewise. No gallstones could be found in the stools. On May 25 an enlarged gall gladder could be palpated. Pulse and temperature normal.

June 9: Exploratory celiotomy. Usual vertical incision. Liver much enlarged, but smooth. Gall bladder distended and enlarged. Aspirated with negative results, dark-green bile being withdrawn. No stones could be palpated, but, while exploring, the patient showed evidences of collapse and all further procedure had to be suspended. The patient reacted to stimulation, the wound gradually healed by granulation, the jaundice diminished for some unexplained reason, and then the brown, discolored spots of Addison's disease became visible on the mucous membranes.

On August 10 the general condition was much improved, the bronzing was more marked and the jaundice lessening. Discharged improved. (Lilienthal.)

1899, vol. ii., page 577. *Cholelithiasis; Stones in Gall Bladder; Cholecystotomy; Anesthesia Broncho-pneumonia; Edema of Lungs; Death.*—Philip L., 50 years old, had had several attacks of biliary colic. The present illness commenced two weeks before his admission on September 16, 1899, with severe pain in the right hypochondrium, chills, fever, and sweating, constipation, and later jaundice. On admission he had a temperature of 100°, which later rose to 102°. He was quite icteric, the liver was slightly enlarged, and there was an indistinct tremor in the region of the gall bladder; the lungs were emphysematous and the heart flabby. The temperature and pulse receded somewhat, and on *September 18* a *celiotomy* was performed. An incision was made parallel to the costal margin. The gall bladder was much distended and very tense and its walls very thin. The general peritoneal cavity having been protected, the gall bladder was aspirated. As no pus was found, it was decided to perform the operation in two stages. The wall of the gall bladder was so thin that no sutures could be introduced to anchor it to the parietal peritoneum, and packings had consequently to be resorted to. The abdominal incision was partly closed. The patient took the anesthetic very badly.

September 19: The temperature rose to 102+°, respiration to 44 per minute, and in the lungs were numerous fine râles. September 20: The gall bladder was opened and many small stones and débris removed. The temperature and respirations continued very high, a broncho-pneumonia developed, and the patient succumbed September 20. (Berg.)

1899, vol. ii., page 1007. *Cholelithiasis; Cholecystotomy; Prolapsus Uteri; Hysterorrhaphy; Recovery.*—Anna R., 44 years old, admitted to the hospital September 30; her chief complaint was the presence of a tumor in the right hypochondrium. This tumor was painless and was evidently the gall bladder.

October 6: Cholecystotomy. Vertical incision. The tumor was an enlarged gall bladder, in which stones could be palpated. The gall bladder was aspirated, clear bile withdrawn, and incised; numerous calculi removed. Drainage of gall bladder; closure of abdominal wound. The patient made an uneventful recovery and was discharged cured November 2, 1899.

1899, vol. ii., page 262. *Cholelithiasis; Cholecystotomy; Drainage; Undetected Stone in Cysticus; Secondary Cysticotomy; Recovery.*—Celia R., 36 years old, admitted May 11, 1899. Present attack five days' duration; severe pain in right hypochondrium, vomiting, constipation, no jaundice, tumor corresponding to the gall bladder; stools normal.

May 15: Cholecystotomy. Usual incision. Extensive adhesions between omentum, colon, small intestines, and the gall bladder, which was considerably dilated and enlarged. Protective packings, aspiration of the gall bladder, cholecystotomy, and removal of two fairly large faceted stones. Exploration of the ducts revealed no further calculi. Drainage and suture.

The patient made an uneventful convalescence. On June 10 there was but a small opening leading to the gall bladder, from which a thin white mucus discharged. This opening in the gall bladder was closed by suture on June 16.

June 20: The gall bladder was again distended and tender and painful, and had to be reopened and again drained. Evidently there was an obstruction at the cysticus, and on July 3 a second operation was performed.

July 3: Cysticotomy. Transverse incision parallel to the costal margin. Numerous adhesions, during the separation of which the gall bladder was injured several times. Protective packings and exploration. Stone found deeply situated in the cysticus. As it could not be dislodged into the bladder, it was cut down upon and removed. Duct closed by Lembert sutures. Drainage of gall bladder. Suture of abdominal wound. Subsequent course was uneventful, patient being discharged August 6, 1899, with a biliary fistula.

1899, vol. i., page 457. *Cholelithiasis; Cholecystotomy; Drainage; Recovery.*—Isaac E., 46 years old, admitted February 21, 1899. Had suffered from attacks of biliary colic, with jaundice, for twelve years. The present attack was of ten days' duration and also accompanied with jaundice; tender rounded tumor corresponding to gall bladder, liver slightly enlarged, temperature normal.

February 23: Cholecystotomy. Incision parallel to costal margin. Gall bladder not much enlarged, but contained many calculi. It was anchored to the abdominal parietes, and opened after adhesions had formed.

February 24: Gall bladder opened, several calculi removed. Drainage.

Uneventful recovery. Discharged cured March 25, 1899, with very small opening into the gall bladder.

1899, vol. i., page 476. *Cholelithiasis; Cholecystotomy; Drainage; Recovery.*—Magdaline E., *72 years old.* Had suffered from attacks of pain in the right hypochondrium for one year. She was icteric about six months before. The last attack was three weeks before admission, March 1, 1899, and had entirely subsided. Her general condition was good, the liver was slightly enlarged, and there was a distinct rounded tumor in the region of the gall bladder.

March 4, 1899: Cholecystotomy. Usual incision. Gall bladder small, but adherent to the omentum and deeply situated. Single stone could be palpated in the cysticus. Protective packings. Aspiration of gall bladder. Cholecystotomy; stone dislodged into the bladder and removed. Drainage.

Uneventful recovery. Patient discharged cured *March 26.*

1899, vol. i., page 793. *Cholelithiasis; Cholecystotomy in two stages; Drainage; Recovery.*—Charles J. H., 47 years old, admitted April 17, 1899. Usual history of gallstone colic extending over fifteen years. Last attack five days before admission. The patient was slightly jaundiced and there was a firm mass to be felt in the region of the gall bladder. No temperature or pulse elevation.

April 19: Celotomy. Usual incision. Gall bladder adherent and deeply situated. Fixed to the parietal peritoneum and its opening delayed until adhesions had formed.

April 21: Cholecystotomy. Two fair-sized stones removed. Drainage.

Uneventful recovery. Discharged cured May 10, 1899. (Lilienthal.)

1899, vol. ii., page 786. *Cholelithiasis; Empyema of Gall Bladder; Cholecystotomy; Drainage; Discharged at Request; Improved.*—Minnie D., 48 years old, admitted September 4, 1899. Usual history of repeated attacks of biliary colic. Last attack three and one-half weeks ago, attended with chills and high fever and complicated by a pneumonia which resolved. On admission patient was slightly jaundiced, the liver was slightly enlarged, and there was a large, tender mass occupying the entire right hypochondrium.

September 5, 1899: Cholecystotomy. Usual incision. Parietal peritoneum everywhere adherent to the gall bladder, which was much enlarged. Latter was incised and sero-purulent fluid evacuated, with several small calculi. No further calculi could be detected by probing through the interior of the gall

bladder. External palpation was deferred, as it was considered inadvisable to break down the existing adhesions around the gall bladder. Drainage. The discharge of bile was never free; the patient continued to have some fever, but refused any further treatment. (Lilienthal.)

1899, vol. i., page 133. *Cholelithiasis; Empyema of Gall Bladder; Cholecystotomy; Drainage; Recovery.*—Carrie S., 52 years old, admitted May 27, 1897, with an attack of biliary colic with fever, lasting two days. She had suffered repeatedly from such attacks for two years, and had passed a gallstone one year ago. The gall bladder was much dilated and enlarged, reaching almost to the umbilicus; temperature 101+°.

May 27: Celiotomy. Usual incision. Considerable free fluid in the peritoneal cavity, with numerous adhesions and flakes of fibrin. Gall bladder sutured to the parietal peritoneum and aspirated so as to relieve its tension. Three days later it was incised and two stones removed. Drainage. The discharge of bile was profuse; the wound healed by granulations, and the patient made an uneventful recovery, being discharged with small biliary fistula July 17, 1899. (Lilienthal.)

1899, vol. ii., page 790. *Cholelithiasis; Empyema of Gall Bladder; Cholecystotomy; Drainage; Impacted Calculus in Cysticus; Cysticotomy; Septicæmia; Death.*—Nettie W., 56 years old, admitted October 14, 1899. History of repeated attacks of gastric dyspepsia. For the past two months she has had severe attacks of abdominal cramps accompanied with jaundice. Patient said she had had repeated chills and fever during the past month, and had lost twenty pounds in weight.

On admission there was marked icterus, slightly enlarged liver and spleen, and a distinct tumor in the right hypochondrium. Temperature 102+°, rising to 105° at night; pulse rate 96 to 120 per minute. Urine negative.

October 16: Cholecystotomy and cysticotomy. Usual incision. Gall bladder only found after much prolonged search, between the layers of the lesser omentum, which extended far over to the right. Gall bladder much contracted. Protective packings. Gall bladder exposed and aspirated, a little pus being withdrawn. Palpation revealed the bladder empty, but a stone in the cysticus. Gall bladder was incised and an attempt was made to dislodge the stone into it. As this was not possible, the duct was incised over the stone and the latter removed. Duct and gall bladder drained. The patient reacted well from the operation, but became very restless, vomited, the pulse became very rapid, although the temperature was normal or even subnormal, and *death* occurred, with no signs of peritonitis, *on the twenty-first of October.*

1899, vol. i., page 408. *Cholelithiasis; Empyema and Very Large Gall Bladder; Cholecystotomy; Recovery.*—Emma H., 19 years old, admitted February 15, 1899. There was a history of attacks of pain in the right hypochondrium for the past two years; had been jaundiced once, about one year ago. The present attack was of three days' standing and was accompanied by fever. In the right hypochondrium was an exquisitely tender, tense mass reaching down to the iliac crest and over to the median line. Urine negative.

February 16: Celiotomy and cholecystotomy. Usual incision. Considerable free serous fluid in the peritoneal cavity. The gall bladder was found to be enormously enlarged, its walls very edematous and thickened to about two inches. Protective packings; aspiration and emptying of the gall bladder. About a dozen stones of the size of hazelnuts were removed, one of which plugged up the cystic duct. After the removal of this stone there was a free flow of bile into the gall bladder. Palpation of the ducts for other calculi being negative, the gall bladder was drained, anchored to the abdominal wall, and the abdominal wound closed. The patient made an uninterrupted convalescence and was discharged cured March 13, 1899.

1899, vol. i., page 860. *Cholelithiasis; Empyema of Gall Bladder; Cholecystotomy; Cured.*—Leda B., 54 years old, admitted May 6, 1899. She had had two previous attacks of biliary colic; the last attack was of two weeks before. There was a tender mass in the right hypochondrium and slight icterus. May 8: Cholecystotomy. Gall bladder distended, contained pus, and three large stones removed. Drainage. Uneventful recovery. Discharged cured May 20, 1899.

1899, vol. i., page 1085. *Cholelithiasis; Empyema of Gall Bladder; Cholecystotomy; Drainage; Recovery.*—Annie S., 36 years old, admitted May 11, 1899. Had been delivered of a baby twelve weeks before and had suffered with fever for six weeks afterward. She had never been jaundiced. The present attack was of four days' duration and was the usual type of biliary colic. On admission there was slight icterus and a tumor in the right hypochondrium, which was considered to be the gall bladder. Her temperature was 103°, pulse 128. Urine negative.

May 15: Cholecystotomy. Usual incision. Numerous fresh adhesions around the gall bladder. Isolation of the gall bladder, aspiration of its contents, incision and removal of numerous small calculi. Drainage. Uninterrupted convalescence. *Discharged cured June 21, 1899.*

1899, vol. i., page 879. *Cholelithiasis; Empyema of Gall Bladder; Cholecystotomy; Drainage; Cured.*—Betty S., 63

years old, admitted April 24, 1899. Usual history of biliary colic extending over two years. Never had been jaundiced. Tumor in the right hypochondrium.

April 25, 1899: Cholecystotomy. Transverse incision parallel to the costal margin. Gall bladder found to be enlarged. Protective packings. Aspiration of contents, which consisted of pus and bile, from the gall bladder, incision and removal of 178 stones. Drainage. Smooth recovery and discharged cured May 22, 1899.

1899, vol. ii., page 158. *Cholelithiasis; Empyema of Gall Bladder; Gangrenous Condition of the Mucosa of Gall Bladder; Septic Cholangitis; Cholecystotomy; Death.*—Jachwit W., 36 years old, was admitted July 16, 1899. Numerous attacks of biliary colic during the past three or four months. The present illness was of three weeks' duration; it commenced like one of the preceding attacks. There was marked jaundice, which diminished, but the fever and pain in the gall bladder had continued. On admission the liver was much enlarged and the gall bladder was distended, painful, and tender. There was still jaundice. Her general condition appeared to be septic. Her temperature was 104.6°, pulse 116. Urine contained bile.

July 17: Cholecystotomy. Removal of numerous calculi and large amount of pus, together with the gangrenous mucosa. Vertical incision. The gall bladder was densely adherent to the abdominal wall. These adhesions were not disturbed, in view of the septic condition of the interior of the gall bladder. Gall bladder aspirated, evacuating large amount of pus, and incised. Numerous calculi were removed. The mucosa, which was in a gangrenous condition, was removed. Drainage. The septic condition of the patient continued. There was a free flow of bile from the gall bladder. Though the patient took a large amount of nourishment, the septic condition persisted and the patient died July 22, 1899. (Berg.)

Postmortem examination through the wound: *No calculi* were found in the *biliary system*. *Spleen* large, soft, and dark red in color. *Liver* likewise. *No peritonitis.*

MISCELLANEOUS ABDOMINAL OPERATIONS—23 cases, 4 deaths.

	Totals.	Deaths.
Celiotomy for lympho-sarcoma of omentum and viscera	1	1
" " retroperitoneal sarcoma (lumbar incision)	1	1
Exploratory celiotomy for fibromyxoma of abdominal wall	1	
Celiotomy for fibromyxoma of patent urachus; extirpation	1	1
Exploratory celiotomy for suspected typhoid perforation	1	
" celiotomy for high rectal carcinoma (preliminary to Rydygier's operation)	1	

	Totals.	Deaths.
Exploratory celiotomy for neoplasm of suprarenal body and kidney	1	
" celiotomy for pelvic lympho-fibro-sarcoma	1	
" celiotomy for carcinoma of hepatic flexure of colon	1	
" celiotomy for carcinoma of sigmoid flexure	1	
" celiotomy for painful adhesions following appendicitis	1	
" celiotomy with preliminary enterostomy for strictures of rectum and colon	1	
Celiotomy for disease of uterine appendages	3	
" " ovarian cysts	2	
" " ectopic gestation, diffuse peritonitis	1	
" " impacted uterus, catarrhal appendicitis	1	
" " diffuse serous peritonitis (cause unknown)	1	
" " drainage of actinomycotic abscess	1	
" " fibroma of pancreas	1	
" " cyst of pancreas (retention cyst), drainage	1	
" " prolapse of intestine through a punctured wound of rectum, peritonitis	1	1

1899, vol. ii., page 693. *Fibromyxoma of Abdominal Wall; Exploratory Celiotomy; Recovery.*—Jacob K., 50 years old, had noticed for two months a small growth about two inches below the umbilicus. It caused him little pain or inconvenience, but steadily increased in size. At the beginning it was movable, but later on the growth became harder and more fixed, and recently there had been a sero-purulent discharge from the umbilicus. On admission, September 11, 1899, there was a growth about the size of an orange, with the umbilicus in about its centre. The tumor was hard and fixed to the deeper structures. The skin was movable over the growth, and from the centre of the umbilicus a fistulous track led downward toward the pelvis, about two and one-half inches, and discharged a sero-purulent material. There were no enlarged glands to be felt.

September 12: Exploratory laparotomy to determine confines and relations of the growth, with a view to its extirpation. The growth was found to have invaded both recti muscles; it was densely adherent to the omentum, transverse colon, and small intestines, so that radical extirpation was utterly impossible. Suture of the wound after excision of a specimen for pathological examination. The wound healed per primam, the patient being discharged October 5, 1899. The pathological report on the specimen was fibromyxoma. (Berg.)

1899, vol. ii., page 909. *Fibromyxoma of Abdominal Wall around a Patent Urachus; Gangrene of Omentum; Diffuse Peritonitis; Death.*—Philip G., 32 years old, had noticed a tumor in the abdomen about six weeks before his admission on October 30, 1899. This gradually increased in size, and coincidently there developed frequent and burning urination. On

admission there was a tumor in median line, involving the deeper structures of the abdominal wall. It extended from just below the umbilicus, downward for three inches, and had a width of two and one-half inches. From its lower pole a hard, fibrous band extended in median line downward to the bladder. Cystoscopic examination revealed a normal bladder. At the upper pole was a semilunar, transverse fold with its convexity upward. Exploratory puncture of the tumor resulted negatively.

November 3: Laparotomy. The growth was found to have invaded the peritoneum and to be densely adherent to the omentum. The omental adhesions were divided between ligatures and then the tumor dissected away from the abdominal mural structures. This necessitated taking away a considerable part of both recti. There was a pedicle-like attachment at the lower pole, which consisted of the urachus. The pedicle was isolated and ligated. The removal of this tumor left a large defect in the abdominal wall, which was closed with considerable tension by through-and-through quilted silk sutures.

Pathological Report on Tumor: The tumor was 9 cm. long, 6.5 cm. wide, and 5 cm. thick, and was embedded in the recti abdominalis muscles. Scattered through the tumor are spots of softening. The composition of the tumor seems to be mainly fibrous tissue, with patches of cartilage and few bony spicules. At the lower pole of the tumor the urachus enters and extends into the growth about three inches.

November 4 and 5: The patient was very noisy and restless and vomited several times, but the bowels moved. Slight temperature elevations. Examination of the wound on November 5 revealed necrosis of its edges. The two lower sutures were removed and wet dressings were applied.

On November 7 there was a marked phlegmonous inflammation of wound, extending down to the intestines and omentum. The temperature elevations became higher, the pulse more rapid, and suppression of urine set in. Sepsis developed and the patient died November 9.

Autopsy revealed a *diffuse purulent peritonitis*, a single area of necrosis of the small intestine, chronic nephritis.

1899, vol. i., page 1053. *Ectopic Gestation; Diffuse Peritonitis; Recovery.*—Katie R., 38 years old, a very stout patient, was admitted February 19, 1899. Four days before she had a sudden attack of pain and cramp in the lower part of the abdomen. The menstrual periods had been perfectly regular, the last one just four weeks before. She had commenced to menstruate on the day of the beginning of her illness. For two days she had vomited considerably and the abdomen had become much dis-

tended. On admission there was considerable pain low down in the right iliac fossa, and per vaginam a bulging mass could be detected. On account of the marked obesity of the patient, a differential diagnosis between appendicitis and ovarian disease could not be made.

Immediate celiotomy on admission. The peritoneal cavity was filled with blood, and a ruptured tubal pregnancy on the right side was found. Deligation of the broad ligament, cleansing of the peritoneal cavity, relief of the distension of the bowel by incision, with immediate closure of the bowel. External wound drained and sutured.

The patient developed a severe bronchitis after the operation; this, together with an abscess formation around the uterus and stump of the broad ligament, retarded convalescence, but the patient finally made a good recovery and was discharged cured June 18, 1899. (Lilienthal.)

1900, vol. i., page 368. *General Actinomycosis; Primary Focus in Intestine; Death.*—David S., 13 years old, a schoolboy and native of the United States, was admitted March 15, 1899, with the history and physical signs of an acute appendicular abscess lying in the hypogastric and right inguinal region. *On March 15 the abscess was incised.* The abdominal walls over the abscess were much infiltrated and the cavity contained a semi-solid cheesy material. The abscess cavity was large and contained several recesses, one reaching upward to the liver, another downward to the bladder, and another to the right iliac fossa. Appendix was not found. Cavity was drained and dressed. The child improved considerably after this operation, and the inflammatory mass became smaller but did not drain well, so on March 28 the child was again anesthetized and a rectal exploration made. The inflammatory mass was found to surround the bladder and infiltrated the recto-vesical pouch; and being found to contain pus, it was incised through the rectum.

The child improved again for a while, but the inflammation spread over to the left inguinal region, where another abscess had to be incised on April 17, 1899. The contents of the abscess was a yellowish, semi-solid material, a specimen of which was reported by the pathologist as actinomycosis. The child again improved. He was put upon iodide of potassium, but soon another focus developed in the right subphrenic region and thence through the diaphragm into the pleural cavity. From the evacuation of these abscesses the child nearly succumbed, but with careful nursing he again rallied and for a while he gained in weight; but new foci constantly formed in the abdomen and chest and in the soft parts of the thigh, and finally he succumbed to the disease February 7, 1900.

1899, vol. i., page 315. *Traumatic Perforation of Rectum; Prolapse of Small Intestine through the Rent; Intestinal Obstruction; Diffuse Peritonitis.*—Harry W., 3 years old, was admitted February 19, 1899. Forty-eight hours before, the maid, while administering an enema, had punctured his rectum with the hard rubber tip of a fountain syringe. About twenty inches of small intestine was found prolapsed through the rent by a physician, who, after replacing the intestine, sent the boy to the hospital. On admission there was a tumor to be felt in the right iliac region and an indefinite mass per rectum. The facies was anxious and pinched. Immediate laparotomy. The small intestine was found to have been prolapsed through the rent and strangulated by the opening in the bowel. A local peritonitis already existed. The intestine was reduced, the sigmoid flexure opened above the rectal tear and fixed to the abdominal wall. Gauze packings in the rectal wound, drainage of the peritoneum. The child reacted well from the operation. No movement of the bowels could be obtained, septicemia developed, and the child succumbed February 23, 1899. (Lilienthal.)

Herniotomies—total, 70; 63 patients.

By A. V. Moschcowitz, M.D.

ABSOLUTE PRIMARY UNION, 46; SLIGHT SUPPURATION, 10; SUPPURATION, 5; OPEN TREATMENT, 2; DEATHS, 5.

	Totals	Primary union.	Slight suppuration	Suppuration.	Open treatment	Deaths.
Inguinal, reducible	24	20	2	2	.	..
" irreducible small	2	..	2	.		..
" " of large size	1	..	..	1		..
" double, both sides operated upon.	14	11	1	2	..	..
" strangulated	7	2	3	..	..	2
Femoral, reducible	3	3	..	..	..	..
" strangulated	4	2	1	..	..	1
Umbilical, reducible	1	1	..	..	..	..
" irreducible.	1	1	..	..	..	..
" strangulated, of enormous size.	1	..	..	..	1	..
Epigastric, irreducible	1	..	.	..	..	1
Ventral, after appendicitis operation	5	4	..	..	1	..
" " median laparotomy.	2	1	1	..	..	..
" through diastasis between recti	1	..	..	..	..	1
" strangulated	3	1	..	..	..	2
Total	70	46	10	5	2	7

There has been no material change in the treatment of hernia since the edition of the report for 1898. Just as in the previous year, Bassini's typical operation was the operation of selection in inguinal hernia, almost to the exclusion of all other methods, Halsted's modification having been done once only. For closing the inguinal canal heavy chromicized catgut was used, and fine catgut for the suture of the superficial structures. The femoral variety of hernia was operated in the majority of cases by Frank's method; in a few instances, owing to the large size of the ring, Poupart's ligament was sutured merely to the fascia pectinata.

A slight variation has been introduced in tabulating the material this year, and will doubtless prove of interest. Only those cases were placed in the category of primary union in which it was faultlessly complete. A new column has been added, under the title "slight suppuration"; in it are included those cases in which primary union was not absolute, but the suppurative process was limited to the skin. By suppuration are meant those cases in which the suppurative process involved also to a greater or lesser extent the aponeurosis of the external oblique. When the material is examined critically in its various aspects, particularly when compared with the results in other parts of the body, one involuntarily comes to the conclusion that it is extremely difficult to obtain perfect surgical asepsis in the inguinal region. Another point worthy of mention is that occasionally an insignificant hematoma was found, in some cases, at the first dressing, but it rapidly became absorbed and did not interfere with the primary union. Fifteen cases of strangulated hernia were operated upon, of which number five had a fatal termination. Of these five cases two patients were operated upon practically in a moribund condition and did not survive the operation by more than two hours. A third case died of peritonitis resulting from a perforation of an intestinal ulcer some distance away from the seat of constriction, while the remaining two patients died of the sepsis which had existed at the time of the operation.

1899, vol. i., page 1121. *Strangulated Ventral Hernia after Median Laparotomy; Herniotomy; Colostomy; Septicemia; Death.*—Julia B., 42 years old, entered the hospital June 23,

1899, with symptoms of strangulation in a ventral hernia; duration of the hernia, seven years; symptoms of strangulation since three days. Operation upon admission under chloroform anesthesia. After incising the hernial sac, the contents were readily exposed, but reduction was impossible until a constricting band between the prolapsed omentum and the small intestine was divided. Opening of the congested intestine to relieve it of the distension. Patient did not do well after the operation, and, as there were symptoms of continued obstruction, colostomy was performed four days after the first operation, but death supervened soon thereafter.

1899, vol. ii., page 1130. *Very Large Strangulated Umbilical Hernia (strangulation caused by omentum adherent to hernial sac); Operation; Recovery.*—Nanie G., 55 years old, has had for twenty-five years a very large umbilical hernia. Its dimensions at the time of admission were, length about 8 inches, and circumference about 15 inches. Patient gives a history of at least ten previous strangulations; duration of symptoms of strangulation, one week. Operation on admission, November 13, 1899. On incising the sac the ileo-cecal part of the intestine presented in the wound, strangulated. Reduction was impossible, and a search for the cause revealed the omentum adherent to the sac in such a manner that only a small opening was left, through which the gut escaped, caused the strangulation and prevented its reduction. Upon dividing this barrier reduction took place very readily. Condition of patient was so low that only through-and-through suture was possible. Wound treated in part open. Patient made a perfect recovery.

1899, vol. i., page 692. *Strangulated Inguinal Hernia (patient moribund); Herniotomy; Sepsis; Death.*—Annie B., 60 years old, was admitted April 26, 1899, with symptoms of strangulation of two days' standing. Immediate operation under 6 per cent. eucaine anesthesia. The strangulated intestine was found to be denuded of its peritoneal covering and not viable, hence it was fixed in the wound and the general peritoneal cavity protected by gauze packings. Duration of operation, only thirty-five minutes, but at this time the pulse became very weak and did not respond to the most energetic stimulation. Exitus in the operating room. Causa mortis, sepsis.

1898, vol. ii., page 1030. *Strangulated Inguinal Hernia of Enormous Size; Herniotomy; Death.*—Sarah B., 53 years old, was admitted to the hospital December 19, 1898, with symptoms of strangulation of three days' standing. Operation immediately upon admission under chloroform and ether anesthesia. Contents of the hernial sac, the larger portion of the colon and most of the ileum. It being impossible to reduce the hernia

through the opening, and as the condition of the patient was rapidly becoming worse, the incision was extended upon the abdomen and contents replaced. Intravenous infusion of two pints of salt solution became necessary. Rapid suture of wound. Death soon thereafter.

1899, vol. ii., page 808. *Strangulated Femoral Hernia; Intestinal Perforation; General Peritonitis; Death.*—Sarah W., aged 48 years, was admitted to the hospital October 27, 1899, with symptoms of strangulation of one and one-half days' standing. Operation on admission under chloroform anesthesia. Contents of the hernial sac were found to be omentum, small intestine and large intestine. As it was impossible to reduce the contents by merely nicking Gimbernat's ligament, it was deemed wisest to cut through Poupart's ligament; after this was done it was still impossible to reduce the hernial contents, hence the incision had to be extended upward on to the conjoined tendon. Reduction of the contents, which were thought to be viable, though suspicious at one point. Death on the following day with symptoms of peritonitis. (During the operation a bacteriological culture was made from the fluid in the sac, and subsequent examination showed the presence of staphylococci.) At autopsy evidences of general peritonitis, ulceration of the intestinal mucosa, and also perforation of an intestinal ulcer about 8 cm. away from the seat of constriction.

1899, vol. i., page 388. *Very Large Epigastric Hernia; Herniotomy; Pulmonary Edema; Death.*—Jacob K., 54 years old, entered the hospital February 28, seeking relief for a hernia of the linea alba which has existed for ten years, but has increased particularly within the last three months. The hernia is the size of a child's head. Operation March 7, 1899, under local anesthesia; hernial contents, stomach, large intestine, and omentum. Reduction of stomach and colon, and resection of omentum and of several large appendices epiploicæ. No sutures applied. On the following days the patient was very much troubled with flatulence. Three days later enterostomy was performed on a loop of small intestine within the wound, which was followed by temporary relief, but patient died soon thereafter with symptoms of pulmonary edema. No autopsy permitted.

1899, vol. ii., page 93. *Very Large, Irreducible Ventral and Umbilical Hernia; Operation; Death; Sepsis.*—Henrietta B., 49 years of age, entered the hospital seeking relief from an irreducible hernia in the median line of the abdomen, which has existed for nine years and has attained the size of an infant's head, and has been the cause of much gastric disturbance, though there was no evidence of interference with the nutri-

tion. Operation on July 4 under chloroform anesthesia. The sac was found to be divided into smaller compartments by adhesions, each sac containing adherent omentum and intestine. Division of the adhesions and reduction of the hernial contents. During this procedure the gut was injured twice, but was immediately sutured. Entirely open treatment. Duration of the operation, four and one-half hours. Three days after the operation some superficial sloughing was noticed. Symptoms of slow but progressive septicemia became apparent. Exitus on July 13, nine days after the operation. At autopsy a localized peritonitis was found with a pocket of pus; gangrene of the stumps of the resected omentum; also signs of sepsis in the kidney and spleen.

1899, vol. i., page 799. *Large Strangulated Ventral Hernia on Outer Border of Rectus; Operation; Peritoneal Sepsis; Death.*—Hyman L. entered the hospital May 7 for the relief of a ventral hernia on the outer border of the right rectus muscle (dimensions 30 cm. by 14 cm.). Operation upon admission to the hospital. Contents of the hernia, all of the omentum, a large coil of greatly distended large intestine, and also small intestine. Opening of the distended intestine and evacuation of contents, so as to permit reduction. Suture. Next day the enterostomy was repeated. Death followed two days later with symptoms of peritoneal sepsis.

Kidney.

By Joseph Wiener, M.D.

The surgical kidney material of this year has been the most abundant one in the history of the hospital. Thirty-three operations were performed on thirty patients.

		Totals.	Deaths.
I.	*Nephrorrhaphy* for floating kidney	1	
	" and appendectomy for floating kidney and appendicitis	3	
II.	*Exploratory* for suppression of urine	1	
	" (*without incising kidney*) for suspected abscess	2	1
	" for inoperable sarcoma	1	
III.	*Nephrotomy* for tubercular pyelonephritis	1	
	" " hydronephrosis	2	
	" " pyelonephritis	2	
	" " acute septic nephritis	1	1
	" " exploration of kidney (secondary) and ureter	1	

		Totals.	Deaths.
IV	*Nephrolithotomy* for calculi and pyonephrosis	1	1
	" " " " pyelonephritis	1	
	" for calculi (immediate suture of kidney)	1	
	" for calculi, followed by secondary nephrotomy	1	
	" for calculi, followed by secondary nephrectomy	1	
V.	*Nephrectomy* for sarcoma	1	
	" for pyonephritis following nephrotomy	1	
	" for pyonephrosis following nephrotomy	1	
	" for pyelonephritis	1	
	" " tubercular kidney	1	1
	" " " " and ureter	1	
VI.	*Ureterectomy* for tuberculosis (kidney removed four years before)	1	
	" for tuberculosis (kidney removed five months before)	1	
VII.	*Perinephritic abscess*, incision and drainage	5	
		33	

Summary of Operations.

Nephrorrhaphy	4	
Exploratory, without incising kidney	4	1
Nephrotomy	7	1
Nephrolithotomy	5	1
Nephrectomy	6	1
Ureterectomy	2	
Perinephritic abscess, incision	5	
Total	33	

Summary of Indications for Operation

Floating kidney	1	
" " and appendicitis	3	
Hydronephrosis	2	
Pyelonephritis	3	
" and appendicitis	1	1
Pyonephrosis	1	
Nephrolithiasis	3	
" and pyonephrosis	2	1
Tubercular kidney	2	1
" " and ureter	1	
" ureter	1	
Sarcoma of kidney	2	
Partial suppression of urine	1	
Acute septic nephritis	1	1
Perinephritic abscess	5	
No kidney lesion found	1	

The *diagnosis* of the surgical diseases of the kidney was made from the:

(1) History of the case.

(2) Examination of the abdomen, with and without anesthesia.

(3) Examination of the urine.

(a) Voided from the bladder.

(b) Drawn from the bladder (catheter).

(c) Drawn by the Harris segregator.

(d) Drawn by the ureteral catheter.

(4) Examination of the bladder and ureters.

(a) By cystoscope.

(b) By ureteral catheter.

(5) Examination with Röntgen rays.

(6) Exploratory operations on:

(a) Bladder—epicystotomy.

(b) Kidney—nephrotomy or celiotomy.

(c) Ureter—ureterotomy.

The methods employed in the examination of the abdomen were bimanual palpation in the dorsal position and in the lateral position. Extreme relaxation of the abdominal muscles was best accomplished by placing the patient on his back, the body being bent forward and the shoulders supported by an assistant, while another assistant flexed the thighs on the pelvis. By employing this method we were enabled accurately to palpate tumors of the kidney and abdominal organs which defied attempts at examination by other methods. This method was employed in obscure cases, with and without an anesthetic, and generally with the most gratifying results. The examination of the urine has for its object not only the detection of the surgically diseased kidney, but also (and this is of the greatest importance) the condition of the opposite kidney. To ascertain the condition of both kidneys from the urine as it flowed from each, three methods of examination were made use of: (1) cystoscopy (sixteen times), (2) ureteral catheterization (three times), (3) Harris segregation (nine times). The cystoscope is a great aid in diagnosis. But although we can with it diagnose a diseased kidney by seeing purulent or bloody urine

emanating from a ureter, we cannot conclude that the other kidney is healthy because the urine from that side appears clear. The urine may appear clear and yet the kidney may be the seat of amyloid degeneration, of a new growth, of calculi, or there may be diseased foci in the parenchyma which do not communicate with the pelvis of the kidney and hence do not modify the character of the urine. To overcome the defects of the simple cystoscopic examination, ureteral catheterization has been introduced, and more recently the Harris segregator. Regarding the value of ureteral catheterization, we may exclude its use from those ureters from which we have seen bloody or purulent urine escape; for, in these cases, the cystoscope has already made the diagnosis for us. We may confine the catheterization to those ureters from which the urine flows clear, as seen with the cystoscope. As the ureteral catheter can only remain in place a limited time, the amount of urine collected from one kidney must be small. The examination of such a small amount of urine must necessarily often be unsatisfactory and frequently will turn merely on the question of the presence or absence of albumin. Moreover, even the absence of albumin from such a specimen of urine is far from positive proof of the soundness of the kidney from which it was drawn. The various affections just enumerated may be present and still there may be no albumin in the specimen before us. It is well known that even in some advanced cases of kidney disease the presence of albumin in the urine is not constant. The small amount of the specimen obtained by the ureteral catheter makes the detection of casts difficult. The presence of red blood cells would be no proof of kidney disease, since a slight abrasion of the mucous membrane of the ureter might very well be the source of the blood. But there is another side to the question of ureter catheterization. Are there any dangers connected with it? The diseases of the kidneys that are most apt to be bilateral (and in consequence the catheterization of the ureters of great value) are the purulent and the tubercular. Is there any danger of infecting a healthy ureter by inserting a catheter through an infected bladder into it? There is a difference of opinion as to whether renal tuberculosis is ever ascending. That a purulent

kidney is frequently the result of cystitis is unquestioned; we have but to refer to cases of bladder infection by catheter, followed shortly by bilateral pyelonephritis. In like manner gonorrheal kidney diseases are certainly examples of ascending infection. As a matter of course, the bladder should be thoroughly irrigated before introducing the cystoscope, but we know we cannot render an infected bladder sterile thereby; moreover, if the infectious material comes from the other kidney, it will be continuously flooding the bladder while we are introducing the catheter. Since purulent and tubercular renal diseases are either the result of a pre-existing bladder disease or secondarily infect the bladder, it is obvious that, to reach the ureter, we must pass the catheter through a bladder that is the nidus for micro-organisms. Some danger of infecting a healthy ureter and through it a healthy kidney there certainly must be!

Having in mind the dangers and shortcomings of ureteral catheterization, and recognizing the great value of a reliable and harmless method of obtaining the urine as it flows from each kidney, Harris, of Chicago, recently introduced an instrument intended for this purpose. With this "segregator," as it is called, the bladder is temporarily divided into lateral halves, from each of which a slender metal catheter leads the urine through the urethra into separate bottles. This method has been repeatedly employed at the hospital during the past year, both before and after a practical demonstration by Dr. Harris himself. The specimens obtained in this way, labelled right and left, were examined by Dr. F. E. Sondern, who kindly consented to do the work for us. In spite of all the care and attention to details, the results have been unsatisfactory. In the first place, in the male subject the rectal blade of the segregator causes so much pain by pressure on the prostate that an anesthetic is often required. The length of time required to obtain even an ounce of urine from each side was generally from one-half to three-quarters of an hour. Sometimes it was not possible to obtain more than a drachm of urine from one kidney. Moreover, the urine from the kidneys sometimes became intermingled in the bladder, obviously vitiating the value of the examination. Much as it is to be regretted, we must admit that

we have to-day no efficient and harmless method of obtaining the urine as it flows from each kidney. Of the three aids to diagnosis, cystoscope, ureteral catheter, and Harris segregator, the one that has been of most service in arriving at a correct diagnosis of the condition of both kidneys has unquestionably been the cystoscope.

Operative Methods.—The patient was generally placed in the lateral prone position, with a cushion under the opposite loin. The usual incision began at the anterior border of the erector spinæ muscle a little below the last rib; it was continued downward and forward parallel to the rib. Frequently the incision was extended forward as far as the reflexion of the peritoneum. The muscles were divided to the same extent and then the lumbar fascia. By continuing the incision so far forward, the pelvis of the kidney and upper part of the ureter were freely exposed. In spite of the length of the incision, the tendency to hernia does not seem to have been increased. In performing nephrorrhaphy, the vertical lumbar incision of Simon was employed in three cases, in one of which the appendix was removed through the same incision. The capsule of the kidney was split in these cases, and sutured with chromicized catgut to the lumbar fascia. In performing nephrotomy the oblique lumbar incision was regularly employed, and the kidney was opened by an incision along its convex border. In one case the last rib was resected to give more space. In one of the cases of nephrolithiasis the kidney was sutured without drainage, only the perirenal tissues being drained. Nephrectomy was performed through the oblique incision. The pedicle was secured with silk, or catgut, or elastic ligature. Whenever possible the ureter and vessels were ligated separately. In one case the peritoneal cavity was opened and packings were introduced to hold aside the colon. Generally part of the wound was closed by sutures. In extirpating the ureter in one case, Israel's incision was employed; the ureter was followed down along the iliac vessels and was ligated close to the bladder without opening the peritoneal cavity. In the other case the peritoneum was twice torn; the upper rent was closed, but the lower one could not be closed and packings had to be introduced. The patient was then placed in the lithotomy position and the

vagina incised to the side of the cervix. Through this incision the ureter was drawn into the vagina and cut off as close to the bladder as possible. (Kelly.)

Floating Kidney.—Four patients, all females. Three were unmarried, one was married. The ages varied from 19 to 26 years. The only married woman had borne a child a year before entering the hospital and dated her symptoms from childbirth. Three of the patients, including the one just mentioned, also had catarrhal appendicitis. In all three the appendix was removed and the kidney anchored at one sitting. In one case the appendix was removed through the vertical lumbar incision of Simon; in the two other cases the usual operation for the removal of the appendix in the interval was performed, and the kidney incision was made independently. Two of the patients with appendicitis suffered from gastric disturbances (indigestion and constipation); whether these symptoms were to be ascribed to the appendix or to the kidney could not be determined. Three of the patients had pain on micturition. In all four cases the symptoms were aggravated by bodily exertion. All of the patients were fairly well nourished.

1899, vol. i., page 210. *Floating Kidney; Exploratory Celiotomy; Nephrorrhaphy; Cure.*—Barbara C., 26 years old, admitted January 7. Five years ago had an attack, lasting three months, of what her doctor called inflammation of the bowels. She had great pain in her right side, where her present pain is located. Is subject to "bilious" headaches just before menstrual periods. Two days ago severe shooting pains developed in the right side, radiating down to the foot and up to the shoulder and arm. Last night severe pain in the bladder while urinating. Was not able to urinate for twelve hours to-day. In the right loin a tender tumor was found that slipped upward on palpation. Urine normal.

January 10: *Exploratory celiotomy.* Incision on right side showed the tumor to be the kidney. Incision closed. Simon longitudinal incision (*nephrorrhaphy*) then made. Kidney aspirated in several places, but nothing found. Capsule incised and kidney sewed to lumbar fascia. Wound closed with chromic gut sutures; small drainage tube to kidney. Cured February 9.

1899, vol. ii., page 218. *Floating Kidney; Catarrhal Appendicitis; Nephrorrhaphy; Appendectomy; Cure.*—Nell E. H., 21

years, admitted July 9. For past three years has been troubled with frequent attacks of pain in right iliac region, accompanied by symptoms of indigestion. Between the attacks there is a constant feeling of uneasiness in this region. Examination elicited pain on pressure over the region of the appendix. July 10: *Appendectomy and nephrorrhaphy.* Usual Kammerer incision made. The stomach at once projected into the wound, and on introducing a finger into the peritoneal cavity the kidney was detected low down and freely movable. Appendix removed and sutures introduced. An incision was then made in the right lumbar region parallel to the last rib, and kidney capsule was sutured to the lumbar fascia with chromic gut. Gauze packing introduced under lower pole of kidney. Upper part of wound closed with silkworm-gut sutures. Discharged cured July 30, the lumbar wound not entirely healed. (Lilienthal.)

1899, vol. ii., page 1179. *Floating Kidney; Catarrhal Appendicitis; Nephrorrhaphy; Appendectomy; Cure.*—Babette B., 19 years old, admitted November 18. For past year patient has been complaining of pain, more or less severe, in small of back. Pain is constant, but more severe at times, especially after walking. No radiating pain, no urinary symptoms. Patient is very nervous and sleeps poorly. Examination showed a painful, movable mass in the right lumbar region, which readily slips under the ribs. Urine shows a few pus cells, hyaline and finely granular casts. November 22: *Appendectomy and nephrorrhaphy.* Vertical incision along outer border of quadratus lumborum muscle exposed the kidney. A small incision was made into the peritoneum at the lower angle of the wound, through which the cecum was drawn. The appendix, which was slightly constricted and hemorrhagic, was removed. A small packing was introduced as far as the peritoneum and left there; the peritoneum was not sutured. The operation was concluded as in the previous case. December 20, discharged cured. A few hyaline casts still present in the urine. (Lilienthal.)

1899, vol. ii., page 672. *Floating Kidney; Catarrhal Appendicitis; Nephrorrhaphy; Appendectomy; Cure.*—Ida B., 26 years old, admitted August 7. Ever since birth of last child, ten months ago, patient has complained of pain in right iliac region and in small of back. This pain is more marked after exertion, and is more marked in the sitting position than in walking. Micturition burning; sometimes stream stops and cannot be started again. Frequently nauseated; bowels constipated. In right hypochondrium there is a tender, movable mass, not influenced by respiration. In right iliac fossa a small, tender mass can be felt, freely movable. August 16: *Nephrorrhaphy.* Vertical lumbar incision. Kidney sutured to quadra-

tus lumborum muscle with chromic gut sutures. Large packing introduced below lower pole of kidney; upper part of wound closed with chromic gut sutures. Appendix was then removed by the McBurney intermuscular operation.

September 20: Discharged cured.

September 24: Readmitted for sudden sharp pain in region of kidney. Patient is neurasthenic.

October 4: Discharged cured. (Moschkowitz.)

Exploratory Operations.—Three of these operations were made by the usual lumbar incisions, one was in the right semilunar line. The first case was a subphrenic abscess. The right kidney later became enlarged and tender, but the exploratory operation failed to reveal any lesion of that organ. The second case was an infectious osteomyelitis of the femur. The capsule of the kidney was split to relieve tension. In the third case an exploratory celiotomy showed an inoperable sarcoma of the kidney. In the fourth case, in removing the appendix the parietal peritoneum in the kidney region was so edematous that an exploratory incision in the lumbar region was undertaken. No pus was found, but post mortem a gangrenous pyelonephritis was found.

1899, vol. ii., page 244. *Subphrenic Abscess; Enlarged Kidney; Incision of Abscess; Exploration of Kidney; Cure.*—Annie R., 19 years old, admitted August 25. Immediate resection of rib and opening of abscess. September 15: Incision of intraperitoneal abscess. September 19: On account of a tender, enlarged kidney on right side it was decided to perform an *exploratory operation* on that organ. A small transverse incision in the flank exposed a large kidney. It was aspirated in several places, but nothing was found. The wound was then closed with through-and-through silkworm-gut sutures and a small gauze drain introduced down to the kidney. Soon after this the patient developed an empyema of the chest and other complications, but the case, which is reported in full under the heading of subphrenic abscess, terminated in a complete recovery. (Berg.)

1899, vol. ii., page 516. *Osteomyelitis of Femur; Acute Degeneration of Viscera; Partial Suppression of Urine; Osteotomy of Femur; Splitting of Capsule of Kidney; Cure.*—Gustav P., 8 years old, admitted July 27. The next day the femur was exposed, but, as it did not seem to be diseased, it was not opened. On the following day the bone canal was exposed, pus and

granulation tissue removed. Gradually a diminution in amount of urine passed. September 2: Only sixteen ounces of urine secreted in twenty-four hours. Marked edema of legs and ascites. Temperature 101°, pulse 136, respiration 48. It was then determined to *split the capsule of the kidney* for the relief of tension. This was done by the usual transverse incision in the right flank. The capsule of the kidney was incised in several places and a small portion of the cortex excised for examination. For the three following days the amount of urine was not increased in amount, but the boy ultimately recovered. The case is reported *in extenso* under cases of osteomyelitis. (Berg.)

1899, vol. ii., page 209. *Sarcoma of Kidney; Exploratory Celiotomy; Inoperable; Unimproved.*—Barnett H., 28 years old, admitted July 10. As far as can be ascertained from the patient, he is in his present condition only three weeks. His friends told him he was growing stout, a fact he had not noticed himself. On examining his abdomen he noticed that it was considerably enlarged and hard, especially on the right side. At no time was there any pain, nor were there any urinary symptoms. No history of gonorrhea or syphilis, nor were there any pulmonary or cardiac symptoms. There had been no bleeding from lung, stomach, rectum, or bladder. Patient had not lost flesh or strength. On examination the man was found to be poorly nourished. Tongue was moist and coated. There was slight conjunctival icterus. There was retraction above and below both clavicles. Lungs normal. Heart, liver, and spleen somewhat enlarged. Occupying right and left hypochondriac regions two large masses can be felt, separated just above the umbilicus by a slight interval from a large mass occupying the umbilical region. Dulness over all three masses, and they all move with respiration. There is a tympanitic note in the hypogastrium and over both lumbar regions. There is no edema present. Temperature 100°, pulse 92, respiration 24. Urine acid, 1028, contains albumin, pus cells, uric acid, and calcium oxalate. July 11: *Exploratory celiotomy* under chloroform. The peritoneal cavity was opened by a vertical incision along the outer border of the right rectus muscle. A solid hard mass projected into the wound; it was palpated and found to be connected with the kidney. The tumor was aspirated; blood was obtained and a little grumous material looking like sarcomatous tissue. As the case was inoperable, the abdomen was closed at once with through-and-through silkworm-gut sutures. The patient reacted well, the wound healed by primary union, and the man was able to leave the hospital on July 28.

1899, vol. ii., page 82. *Catarrhal Appendicitis; Gangrenous Pyelonephritis; Appendectomy; Exploration of Kidney; Death.*—Louis W., 32 years old, admitted July 6. Seven days before had his first attack of acute appendicitis. Examination showed face anxious, tongue moist and coated, and pulse rapid, irregular, and feeble. Abdomen tympanitic, not tender except in right iliac region, where a firm, resisting mass can be felt. Temperature 101.4°, pulse 110, respiration 26. Immediate operation. *Appendectomy and exploration of kidney region.* The appendix was removed in the ordinary way. Free fluid was found in the peritoneal cavity. The appendix was adherent to the colon, but not perforated. Its mesentery was so brittle that it could not be ligated and it was therefore clamped. The parietal peritoneum in the region of the kidney was so infiltrated that an abscess in this region was suspected. An incision was therefore made in the right flank one inch above the crest of the ilium. The preperitoneal fat and parietal peritoneum were found very edematous. Most of the edema disappeared after the incision had been made and no abscess was found. Gauze packings were introduced. The appendix was congested and filled with feces. The day after operation, temperature 101.4°, pulse 120, respiration 28. Vomited large amounts of fluid. Urine was clear, acid and contained a trace of albumin; otherwise it was normal. July 12: Skin red around both wounds; clamp removed from meso-appendix; iodoform gauze replaced by plain gauze. Temperature 100°, pulse 106, respiration 38. Patient is stupid; his answers not clear. July 13: Temperature 100.8°, pulse 138, respiration 40. Stitches removed. Pulse became very feeble, and, in spite of active stimulation, patient died. *Postmortem.*—Site of appendix normal. Peritoneum normal. Right kidney enlarged to double its normal size and the seat of a gangrenous pyelonephritis. Kidney cortex was the seat of an acute degeneration and some foci of suppuration were found. The ureter was patent; the bladder wall was thickened. The left kidney was small and atrophied, the seat of a chronic interstitial nephritis. There were numerous hemorrhagic infarcts of the lungs.

Nephrotomy—incision of the kidney itself—was performed seven times. (This does not include the operations for renal calculi, which are reported under nephrolithotomy.) One case (vol. i., page 169) had tubercular pyelonephritis. His condition was improved by the nephrotomy, but he refused to have a nephrectomy done. Two cases had non-tubercular pyelonephritis. The one (vol. i., page 792) was cured by the nephrotomy; the other (vol. i., page 487) was cured by the sec-

ondary nephrectomy. Two cases suffered from hydronephrosis. The one (vol i., page 97), a boy of 4½ years, is supposed to have developed the hydronephrosis after being run over by a wagon four weeks before the operation. He was not improved by the operation. The other case (vol. i., page 342) was of only a week's standing and was cured by the nephrotomy. The only fatal case (vol. i., page 897) was one of acute septic nephritis of unknown origin; a prompt nephrotomy failed to save the patient. In one case (vol. i., page 139), following a nephrolithotomy, a secondary nephrotomy together with an exploration of the ureter was undertaken. The patient was cured.

1899, vol. i., page 169. *Tubercular Pyelonephritis; Epicystotomy; External Urethrotomy; Nephrotomy; Improved.*—Samuel S., 29 years old, admitted January 31. For the past year passed blood with urine when up and working. For past three months patient has had pain in right side; no pain on urination. He was in the hospital last March for twenty-one days, and was discharged with the diagnosis of renal calculus. He has been cystoscoped many times at the dispensary by Dr. Coldenberg, who diagnosed an ulcer at the orifice of the right ureter and a probable tubercular right kidney. Examination showed a fairly well nourished man with a few suspicious signs in the lungs. A small tumor was felt in the right lumbar region. Urine clear, acid, 1020, contains albumin, red and white blood cells, no casts. February 6: *Cystoscopy* without anesthesia. Bladder congested around the openings of both ureters; a roughened patch about the left one, and a flat patch around the right one. February 9: *Epicystotomy and external urethrotomy.* Bladder opened by transverse incision. The congested areas about the ureters were seen to be papular enlargements of the mucous membrane. Kelly ureter catheters were then inserted through the bladder incision. The bladder was then opened through a perineal incision and a rubber tube inserted. Through this tube the two ureter catheters were brought out and fastened with adhesive plaster. The suprapubic wound was closed completely. Urine drained from the right ureteral catheter, but not from the left. A few hours later both catheters were removed. February 11: Urine very turbid, contains one-half inch sediment of mucus and pus, also some red blood cells. Large amount of urine comes through suprapubic wound. Temperature 101°. March 22: Suprapubic and perineal wounds much smaller. Urine contains many pus cells

and a few red blood cells. After having walked about a few hours, passed bloody urine in which no tubercle bacilli were found. April 4: *Cystoscopy* showed trigonum congested and inflamed, and the same condition present about the ureters as at the previous examination. The *Harris segregator* was then introduced and the urine collected in two bottles. From the right side 9 c.c. were obtained in fourteen minutes, and from the left 11 c. c. in seventeen minutes. The pathologist reported a possible pyelitis on the left side and a probable pyelonephritis on the right side. April 17: *Cystoscopy* showed a good-sized granulating surface on the trigonum, from which blood exuded; no blood seen from the ureters. Four days later had another attack of hematuria. Amount of urine about 50 ounces daily. April 25: *Nephrotomy* on right side. Usual oblique incision made. Kidney was not enlarged. It was aspirated in several directions, but only blood withdrawn. With dressing forceps a canal was made through the cortex to the pelvis and a small tube inserted. Small packings were inserted about the tube for drainage and the rest of the wound closed with silkworm-gut sutures. Patient reacted well; amount of urine normal, contained some blood. Daily bladder irrigations. May 25: Urine still contains red and white blood cells. Patient complaining considerably of pain over left kidney and ureter. July 4: Intense pain in right lumbar region. Right kidney is palpable and tender. General condition of patient is poor; he refused another operation. Temperature 104° to 106°, pulse 100 to 124, respiration 28 to 34. For six days patient had high temperature, for which no cause could be found. No plasmodia in the blood. July 24: Temperature 98.4°, pulse 88, respiration 20. Urine still contains pus. Discharged improved.

1899, vol. i., page 487. *Pyelonephritis; Nephrotomy; Nephrectomy; Cure.*—Mary L., 50 years old, admitted January 1. Has been suffering for several months with severe pain in right lumbar region, accompanied at times by chills, fever and sweating, and occasional vomiting. The pain does not radiate to the back or shoulder. Examination showed a large tumor in the right hypochondrium, which was diagnosed as kidney. Urine acid, 1010, contains albumin, large number of pus cells, and some epithelium. Temperature, pulse, and respiration were normal. January 13: *Cystoscopy* showed a brownish, congested area about the mouth of the right ureter, from which a purulent fluid was observed to flow. The left ureter seemed healthy. About 35 ounces of urine are passed in twenty-four hours.

January 17: *Nephrotomy.* The right kidney was incised and a large amount of clear fluid was evacuated. No calculus was found and a tube was inserted into the pelvis of the kidney. A

small piece of kidney was removed and was diagnosed pyelonephritis by the pathologist. Not much improvement having taken place, on February 17 *nephrectomy*. Incision made along scar of former operation. While separating the adhesions around the upper pole of the kidney, the peritoneal cavity was opened and the lower edge of the liver was seen. The opening in the peritoneum was immediately closed with catgut suture. The kidney was then isolated, the blood vessels ligated, and the ureter clamped; the kidney was then cut away. The ureter was stitched to the skin and a tube inserted. The cavity was packed with gauze. Patient reacted very well, passing 49 ounces of urine in twenty-four hours. A week later the urine was normal. The ureter was cauterized with 25 per cent. solution of carbolic acid. March 20: A soft catheter was passed into the end of the ureter; methylene blue being injected, appeared in the bladder. The ureter was then loosened from its adhesions to the skin and turned in with a few fine catgut sutures. March 26: Discharged cured, sinus not entirely closed, but very shallow.

1899, vol. i., page 97. *Hydronephrosis; Nephrotomy; Unimproved.*—Morris L., 4½ years old, admitted April 15. The only previous sickness has been measles. Four weeks ago the child met with an accident. It is not certain whether he fell out of an express wagon or was hit by the pole of the wagon and run over. He did not lose consciousness, but could not stand. He was taken to a metropolitan hospital, where his right leg and abdomen were encased in plaster. He was discharged from the hospital as cured two weeks ago. Since then the child has complained of pain, especially on the right side. Five days ago, parents noticed the abdomen began to swell, at first on the right side. Bowels were regular; there was no vomiting. For past six days child passed small quantities of urine at very frequent intervals. There were no chills, sweats, or fever. Examination showed a huge tumor occupying the entire right side of the abdomen from the liver almost to the crest of the ilium. Examination under chloroform showed the tumor to be fluctuating. The colon was inflated and was found pushed to the left. The tumor was aspirated in the lumbar region and 36 ounces of yellow fluid were evacuated. The tumor disappeared. The next day the tumor returned and the child passed only 14 ounces of urine. The evacuated fluid was cloudy, alkaline, 1001, contained a moderate amount of albumin, no urea, responded to Fehling's test; microscopically, pus cells, red blood cells, epithelial cells, and calcium oxalate crystals. From this examination the deduction was drawn that, since urea was absent and calcium oxalate crystals present, we had to

deal with a process that antedated the reception of the traumatism. Examination of the urine showed it acid, clear, 1014, urea 2.6 per cent. There was no albumin, no sugar, no indican, and nothing on microscopic examination. Child has considerable abdominal pain of an intermittent character. Urine 6 to 8 ounces daily. April 24: *Nephrotomy.* An oblique lumbar incision exposed the sac, which was incised. A large quantity of urinous-smelling fluid escaped. An examination of the interior of the sac showed that its upper portion was closely adherent to the diaphragm and the liver. The sac was uniformly smooth, devoid of any indications of renal parenchyma or calyces. The location of the ureteral orifice could not be ascertained. Two drainage tubes and iodoform packings were introduced and wound was left entirely open. The fluid removed from the sac was slightly turbid, 1004, contained a moderate amount of albumin, 3 per cent. urea, no sugar, red and white blood cells and columnar epithelium. Following the operation there was a profuse discharge from the wound and 5½ ounces of urine per urethram in twenty four hours. Following the operation the child presented the picture of sepsis. The temperature was high, 104° to 105°, with morning remissions. The wound contracted and looked well, but the fever persisted without discoverable cause until June 15, *secondary nephrectomy.* Old scar tissue, superficial and deep, was excised. While dissecting, peritoneal cavity was opened and iodoform gauze packing was inserted. No kidney tissue could be found, so, after clearing out everything suspicious, the wound was packed with gauze. Patient reacted fairly well, but the fever persisted. The amount of urine increased to 32 ounces. July 13: Passed 47 ounces of urine; wound healing. Temperature 99° to 102.4°, pulse 104 to 128, respiration 32 to 34. Discharged unimproved, at request and against advice.

1899, vol. i., page 342. *Hydronephrosis; Nephrotomy; Cure.* —G. A. H., 30 years old, admitted January 30. One week ago was suddenly seized with pain at night in the left lumbar region, radiating to the back and to the left groin. Vomited all nourishment during the past few days. There were no chills, fever, or sweats. Pain was constant, but gradually became less, and to-day there was none. Patient never had a similar attack, and has otherwise been well. Temperature 99°, pulse 76, respiration 24. January 31: *Nephrotomy* by an oblique incision on the left side from the ribs to the crest of the ilium. Capsule of kidney was incised and a large, tense organ brought into view. Aspiration showed it to contain a urinous fluid. Incision was then made through the cortex with a narrow knife and opening dilated with dressing forceps. Considerable fluid was evacu-

ated. Finger inserted failed to detect a stone; aspirating needle in various directions likewise failed. Tube and packings were introduced and wound partly sutured. Patient reacted very well, passing normal amount of urine. Examination showed a few hyaline and granular casts. February 8: Methylene blue solution injected into the tube did not pass through ureter into the bladder. February 14: A little of the methylene blue solution passed into the bladder. February 19: Sounds passed through the wound into the bladder. February 25: Tube removed and replaced with gauze. Pulse and temperature normal. March 2: Discharged cured.

1899, vol. i., page 897. *Acute Septic Nephritis; Sepsis; Nephrotomy; Death.*—Caroline G., 57 years old, admitted May 17. Five days before entering the hospital, was seized with an attack of severe pain in the right lumbar region, radiating to the back and epigastrium. Patient had fever and two days ago she became delirious. There were no chills, no sweats, and no jaundice. There was no history of a previous attack. Examination showed a well-nourished woman, delirious, with slight conjunctival icterus. In the right loin there was a large, tense, extremely painful tumor that was diagnosed as kidney.

Immediate nephrotomy. The usual oblique incision exposed a large, movable kidney. It was aspirated in various directions, but no pus or calculus found. The kidney was then incised and it was found to bleed very little. A piece of the organ was removed for examination. Drainage tube was inserted into the pelvis. Other incisions were made into the cortex and but little bleeding followed. Gauze packing and suture of part of wound. Before operation, temperature 102.6°, pulse 112, respiration 22. Urine examination showed that it was cloudy, acid, urea 3 per cent., containing albumin, a little pus and epithelium, many finely and coarsely granular casts. The delirium was controlled by morphine and hyoscine. The urine after operation was unchanged, except that it also contained blood and the casts were diminished in number. Passed 18 ounces per urethram in twenty-four hours; still delirious at times. On the following day passed 41 ounces of urine. Temperature 103° to 104°, pulse 120, delirious most of the time. May 22: Profuse diarrhea. The following day the general condition improved a little; was more rational at times; passed 36 ounces of urine. Temperature 102.6° to 104°, pulse 98 to 100, respiration 24 to 30. The character of the urine was unchanged. May 24: Condition worse, breathing labored, delirious and unconscious most of the time, pulse feeble and intermittent. May 25: Unconscious all day. Temperature 104.4° to 108.5°, pulse 106 to 178, respiration 44 to 60. Died at 5:30 P.M.

1899, vol. i., page 792. *Pyelonephritis; Nephrotomy; Cure.* —Betty S., 20 years old, admitted from the Medical Department August 5. Patient had been treated in the Medical Department since February 24 for articular rheumatism of knees and ankles. June 5 a resistance was first noted in the right hypochondrium. During July she had symptoms of an acute appendicitis for a few days. July 23: Considerable pus and some blood were found in the urine. July 30: Patient complained of severe pain and tenderness in right lumbar region. August 5: *Cystoscopy* under chloroform, by Dr. Lilienthal, revealed what looked like a papilloma of the bladder. *Ureteral catheterization* was attempted on the right side, but the catheter was arrested about an inch from the mouth of the ureter. Urine was acid, 1026, contained pus, epithelium, and bacteria. August 7: *Nephrotomy* by the usual transverse incision in right flank. The kidney appeared entirely normal. An incision was made through the cortex, and when the pelvis was reached a mixture of blood and pus flowed out. A Kelly catheter was passed through the wound about four inches into the ureter: owing to the thinness of the ureter it was not considered safe to pass it further. Tubes and gauze packings introduced and wound left open. A piece of the cortex of the kidney was removed and pronounced marked acute degeneration. Patient reacted well. Urine contained blood, pus, epithelial and granular casts. A culture from the pus in the pelvis of the kidney at the time of operation proved negative. August 14: Ureteral catheterization from above downward under chloroform. A catheter equivalent to a No. 9 F. sound was readily passed fourteen inches into the ureter; an obstruction at this point was finally overcome and the catheter was felt to be in the bladder. Methylene blue solution injected through the ureteral catheter was at once withdrawn from the bladder by catheter. The obstruction that had been encountered was probably a spasm of the circular muscular fibres at the junction of ureter and bladder. About thirty-three ounces of urine are passed daily. September 12: *Cystoscopy* under chloroform: attempt to catheterize ureters was unsuccessful. October 11: Wound entirely healed. Urine is acid, 1016, contains a trace of albumin, pus and epithelial cells, casts and bacteria. Patient was treated for rheumatism of knee until November 7, when she was discharged cured. (Berg.)

Nephrolithotomy was performed on five patients. In all the cases there were attacks of pain extending over various periods, from four weeks to three years. One patient had only two attacks in two years, another had twenty attacks in three years.

In three cases the pain was referred to the lumbar and iliac regions, in two to the hypochondrium. The urine in all five cases contained pus; three times blood was found, twice albumin; in one case casts and once epithelial cells. In only one case was micturition painful and increased in frequency during the attacks. The attempt was made on several occasions to demonstrate the presence of calculi by the Roentgen rays, but without success. Two of the patients entered the hospital with elevations of temperature, 102° and 103° F.; in one of these cases there was pus in the kidney, in the other there was not. In one case (vol. i., page 272), although there was a pyonephrosis present, the temperature was normal. In three of the cases a single stone was found, and in one of these cases (vol. ii., page 529) the kidney was immediately sutured, only the perirenal tissues being drained. In one case (vol. ii., page 284) an exploratory celiotomy was first performed, as the diagnosis lay between a kidney and a gall bladder. At the nephrolithotomy, immediately following, many small calculi were removed.

1899, vol. i., page 139. *Renal Calculus; Nephrolithotomy; Secondary Nephrotomy; Uretero-lyso-orthosis; Cure.*—Scholem B., 34 years old, admitted June 24. For the past twenty months had suffered from pain in the left lumbar region, accompanied by pain in the left groin and testicle. These pains came on two or three times a week and continued for several hours. During the intervals there is no pain whatever. For the past two months urination has been painful during these attacks and increased in frequency. He has had no chills or sweats, but occasionally has fever. There has never been bloody urine, nor is there any interference in the size of the stream. Appetite has been good, but patient has lost in weight. Bowels constipated. Ten years ago he had fever for eight days, with sweats and chills, but otherwise has been well until twenty months ago. On admission, temperature 103°, pulse 120, respiration 28. Examination showed a well-nourished man with skin of bronze hue and conjunctival icterus. Organs of chest and abdomen were normal. Urine alkaline, 1014, cloudy, contained albumin but no indican. Microscopic examination showed many pus cells, epithelial cells, granular matter, and a few hyaline casts. Urea 5 grains to the ounce. Patient received urotropin, 10 grains t. i. d. Bladder was irrigated with solution of potassium permanganate 1 to 4,000 b. i. d. June 27:

Temperature 99.4°, pulse 100, respiration 24. Under anesthesia no tumor could be felt in the abdomen. Passed 42 ounces of urine in twenty-four hours; contains pus cells and calcium oxalate crystals. July 6: Hemorrhoids removed by clamp and cautery. Pain in left lumbar region persisted. July 29: *Meatotomy* under cocaine by Dr. Lilienthal. *Ureteral catheterization* could not be performed on account of the irritability of the patient. August 10: Cystoscopy by Dr. Berg, without anesthesia, was attempted, but it was not successful. August 14: *Cystoscopy* under chloroform. Flakes of pus were seen coming from both ureters. Abdominal palpation showed no enlargement of either kidney. August 18: *Nephrolithotomy* on left side. The usual transverse kidney incision was made one inch below the last rib. The peritoneum was accidentally opened and immediately sutured with fine catgut. Kidney was felt to be very high up under the ribs. A vertical incision upwards was therefore made and the last rib resected. The kidney was drawn into the wound and a stone was felt in its pelvis. Kidney was bisected through the convex border, the pelvis opened, and an oxalate of lime stone removed. Drainage tube and gauze introduced into pelvis of kidney and the two halves of the kidney above and below sutured with catgut. Cigarette drain introduced into wound below and behind kidney. The rest of the wound was sutured. Following the operation, temperature 102°, pulse 130, respiration 28. In the following twenty-four hours patient passed twenty-four ounces of urine per urethram, and a considerable quantity escaped from the wound. A week following the operation urine still contained pus and epithelial cells. October 3: The urinary fistula remains patent. The urine from the incised kidney appears through the fistula and saturates all the dressings. Yesterday this kidney was catheterized through the fistula and the urine showed 2 per cent. of urea, no pus, but some mucus. The urine passed per urethram showed pus, epithelium, and phosphates; this proved that it came from the other kidney. Temperature 99°, pulse 82. A solution of methylene blue was injected through the fistula and in a few seconds it showed itself in the urine from the bladder. From 30 to 50 ounces of urine are voided from the bladder daily. October 12: *Cystoscopy,* without anesthesia, by Dr. Gerster. Clear urine was seen to flow from the right ureter. Orifice of left ureter was crater-like, surrounded by a congested and pigmented area. Turbid masses were seen to escape from the left ureter, and one large solid plug. The patient was extremely tolerant to cystoscopy without anesthesia. October 23: *Exploratory nephrotomy and*

exploration of left ureter; uretero-lyso-orthosis, by Dr. Gerster. Transverse incision through old scar reinforced by a vertical one. The remnant of the last rib was resected to gain more space. Sinus, together with cicatricial tissue, dissected and isolated down to kidney. The kidney was found with difficulty, buried in scar tissue. No evidence of disease of kidney was found. The ureter was then exposed. It was embedded in adhesions and kinked at one point. Incision prolonged downwards as far as the crest of the ilium and then upwards 1½ inches anterior to anterior superior spine. This incision (Israel's) was deepened as far as the peritoneum, which was then stripped forward from in front of the psoas muscle and the ureter exposed. It was found to be normal. Drainage tube and gauze introduced as far forward as the anterior end of the incision and emerging at the site of the original kidney wound. Wound closed with silkworm-gut button sutures, the line of suture being twelve inches long. The patient reacted well. He passed about 40 ounces of urine daily. The long incision healed kindly, with the exception of a slight superficial infection and one large stitch-hole abscess. November 3: Urine acid, faint trace of albumin, considerable number of pus cells. Temperature 99.4°, pulse 100. November 20: Discharge much less, very little urine from kidney sinus. Temperature is normal; urine no longer contains pus, although it is still a little cloudy. January 8, 1900: No discharge from sinus. Discharged cured. (Gerster-Berg.)

1899, vol. i., page 272. *Renal Calculi; Pyonephrosis; Nephrolithotomy; Death.*—Bartholomeus P., 35 years old, admitted February 19. For past five or six months constant pain in the left lumbar region, more severe at times. For the past two months the pain is very much worse. The patient has night sweats and has lost considerable flesh, but his appetite is good. No urinary symptoms, no pain in testicle or groin. Had gonorrhea fifteen years ago. Examination showed a fairly well nourished man. In the left loin a distinct tumor could be felt. Temperature 98.6°, pulse 115.

February 21: *Nephrolithotomy.* Oblique lumbar incision made from the lowest rib toward the ilium. There were firm adhesions all around the kidney, which required considerable time to free. An attempt was made to open the ureter, but this was abandoned. The kidney was surrounded with gauze and aspirated. Some foul-smelling pus was obtained and the kidney was then freely incised at the point of aspiration. The index finger was introduced and several stones were felt. These were removed as well as possible with forceps, but, being very brittle, they broke into many fragments, necessitating the use

of a blunt spoon for their removal. A tube was inserted into the pelvis of the kidney and iodoform gauze packings into the abscess cavity and against the bleeding surfaces. The outer portion of the wound was packed with gauze, the angles being united with through-and-through silkworm-gut sutures. The urethral stricture was then stretched up to No. 31 sound, but it was not cut. A soft catheter was introduced into the bladder. Examination of the urine before operation showed that it was acid, 1018, and contained many pus cells and few red blood cells. During the operation it was necessary to stimulate the patient, and after the operation two and one-half pints of saline solution were infused intravenously. Two hours later a second infusion was undertaken; but, in spite of all, the patient died within a few hours. Shock, together with the moderate loss of blood, overwhelmed the patient. Autopsy showed the left kidney to be very large, congested, and hemorrhagic in parts. The pelvis and calyces were dilated and contained the remnants of soft white stones. Right kidney was congested, the capsule adherent, and the pelvis dilated.

1899, vol. i., page 243. *Renal Calculus; Pyelonephritis; Nephrolithotomy; Cure.*—Harry F., 36 years old, admitted December 30. In 1894 patient was operated on at Roosevelt Hospital for hemorrhoids. He was catheterized for several days and noticed a urethral discharge subsequently. Had several attacks of gonorrhea before this operation and once after it. In 1895 he was treated for cystitis. In 1897 patient had an attack of renal colic with fever, abdominal pain, pain in left hypochondrium, and pain on urination. This attack lasted ten days. He was fairly well after this until eleven days ago, when he had a severe chill, followed by fever, pain in the left hypochondrium radiating to the back, headache, vomiting, and painful micturition. Since this attack, fever and pain in left side have persisted. Appetite poor, bowels constipated. Examination showed the abdomen somewhat distended and tympanitic, and tenderness in the left hypochondrium. Temperature 102°, pulse 76. Passed 30 ounces of urine containing a few pus cells. During next three weeks patient had temperature elevations up to 105° and had chills twice. The urine at times contained a great deal of pus and some red blood cells. No plasmodia were found in the blood. Widal's test was negative.

Admitted from Medical Department January 23: *Nephrolithotomy.* Lumbar incision on left side from ribs diagonally toward crest of ilium, six inches long. Kidney was liberated from its fatty capsule with some difficulty. Capsule was divided; kidney was aspirated and pus found. Kidney was incised and pus evacuated. Finger introduced felt a stone at the

bottom of the cavity; this was removed with forceps. Small tube was introduced and cavity and wound packed with iodoform gauze. After the operation 20 ounces of bloody urine were passed in twenty-four hours. Patient reacted well. January 26: Under chloroform, drainage tube and packings were removed and iodoform gauze packing introduced. Part of wound was closed with silkworm gut. With the exception of a slight stitch-hole infection, recovery was uninterrupted and patient was discharged cured February 17.

1899, vol. ii., page 529. *Renal Calculus; Nephrolithotomy; Cure.*—Rebecca C., 42 years old, admitted from Medical Department August 22. Had been suffering for four weeks with pain in left lumbar region. Urine acid, 1020, contains pus cells, a few red blood cells, and some epithelium. August 22: *Nephrolithotomy.* Usual transverse incision in flank parallel to last rib. The kidney was separated with difficulty from its capsule, to which it was adherent. A stone was felt by the aspirating needle introduced through the cortex into the pelvis. With the usual precautions, the kidney was bisected and a small calcium oxalate stone weighing 8 grammes was removed. The kidney wound was sutured with catgut, the perirenal tissues were drained with gauze, the muscles united with catgut sutures and the skin with silkworm gut. There was considerable blood in the urine after the operation, but the patient reacted well. Convalescence was uninterrupted and patient was discharged cured, with wound almost healed, on September 13. (Moschcowitz.)

1899, vol. ii., page 284. *Renal Calculi; Exploratory Celiotomy; Nephrolithotomy; Improved.*—[Note: Patient subsequently returned to the hospital; a secondary nephrotomy was then performed and later a nephrectomy, which was followed by the patient's death. The case will be reported *in toto* in the next year's reports.] Lena R., 32 years old, admitted November 26. Patient had seven children, four living, the last one ten months ago. Present attack began two weeks ago with severe pain in right iliac and lumbar region. Had chills, vomited, and was constipated. The attack lasted several hours and suddenly disappeared. Pain required morphine. Patient states urine looked cloudy and thick for some time before the attack. Patient gives a history of having had about twenty similar attacks, the first one three years ago. Urine acid, contains albumin, a few pus and epithelial cells. The right loin is occupied by a mass which can be readily palpated; it is very painful and moves slightly with respiration.

November 28: *Exploratory Celiotomy followed by Nephrolithotomy.*—The exploratory operation was done in the right

semilunar line. The right lobe of the liver was found very much enlarged, extending almost to the level of the umbilicus. Gall bladder was palpated and found normal. Right kidney was palpated and was found much enlarged. Celiotomy wound was closed with through-and-through sutures. Right kidney was then exposed by incision parallel to free border of ribs. Hepatic flexure of colon presented in the wound and was held aside with gauze packings. Vertical incision was made through the kidney into its pelvis. Finger introduced felt many small calculi, several of which were removed with a spoon. Several calculi impacted in the ureter were also removed. Two drainage tubes inserted into kidney enabled thorough irrigation. The tubes were left in place and the angles of the wound closed with silkworm gut. (The further report of the case will appear in next year's reports.)

Nephrectomy was performed six times, three times for purulent disease, twice for tuberculosis, and once for sarcoma. In three of the cases primary nephrectomy was done; in the other three cases the removal of the kidney was preceded by one or more nephrotomies. The only fatal case was a primary nephrectomy for tubercular pyelonephritis. The indications for the primary operation were tuberculosis or sarcoma. The purulent diseases of the kidney were regularly treated by incision and drainage. In some instances this was sufficient to bring about a cure. Sometimes a second nephrotomy brought about a cure and a nephrectomy was unnecessary. In some cases the patient was in wretched condition and a primary nephrectomy would probably have resulted in death. In such cases a nephrotomy was done, the patient was allowed to gain in strength, sometimes he was sent home to recuperate, and the subsequent nephrectomy was not only much easier technically, but the improved general condition of the patient enabled him readily to overcome the shock of the operation. In one case (1898, vol. ii., page 1012) the removal of a tubercular kidney was followed in five months by the removal of the ureter. The interval between the nephrotomy and the nephrectomy is utilized not only for improving the patient's general condition, but in ascertaining the functionating capacity of the opposite kidney.

1899, vol. i., page 49. *Sarcoma of Kidney; Nephrectomy; Cure.*—Jacob S., 37 years old, admitted May 8. Sickness began four months ago with very severe pain in right lumbar region,

radiating over the whole upper part of the abdomen, accompanied by very severe vomiting. The pain has continued more or less severe ever since, but the vomiting has not recurred. For six weeks urination has been frequent, but not painful. During past two weeks urine has been bloody and there has been pain radiating to the right groin. The blood has occurred in the urine usually every day and sometimes several times a day. Patient denies having had gonorrhea or syphilis. Bowels move freely. Urine red, acid, contains albumin, faint trace of bile but no indican, urea 10 grains to the ounce. Microscopic examination showed red and white blood cells, epithelial cells, mucous shreds, hyaline and granular casts. May 11: *Cystoscopy* showed trigonum, together with small area about both ureters, to be slightly congested. *Harris segregator* was then introduced and bloody urine obtained from *both* sides. Patient continued to pass a normal amount of urine with frequent attacks of hematuria until, June 5, *nephrectomy* by a five-inch incision in the right loin parallel to the last rib. Kidney was found to be large and hard. A vertical incision upward was added and last rib was resected. Needle, introduced several times, met with a feeling of resistance, but no stone. Kidney was found to be very large, the seat of a tumor extending towards the median line. Pedicle was tied with heavy silk ligatures and kidney was removed. The tumor was found to come from the lower part of the kidney, the upper part being apparently healthy. Wound tightly packed with gauze and a few sutures introduced. During the operation the patient required stimulation, but he reacted well. He passed 30 ounces of bloody urine in twenty-four hours after operation. Urine contained blood, pus and epithelial cells. The following day there was general icterus and some tenderness in the right side of the abdomen; this disappeared in a few days. June 10: General condition rapidly improving; urine is clear and normal. June 21: Under chloroform the silk ligature around the stump of the kidney was cut away and the granulations were scraped. July 7: Wound almost healed; urine normal; discharged cured. (Lilienthal.)

1898, vol. ii., page 1012. *Tuberculosis of Bladder, Ureter, and Left Kidney; Epicystotomy; Nephrectomy; Ureterectomy; Cure.*—Harry S., 38 years old, admitted October 25, 1898. Family history was negative. Two years ago had an attack of hematuria with severe vesical pain radiating to the penis. Shortly afterwards had a second attack of hematuria. Since then no return of hematuria, but for three months following the second attack there were vesical tenesmus, very frequent urination, and severe pains in bladder, rectum, and

penis, especially in the head of the penis. After three months' treatment in bed patient felt very much relieved and was able to go about by irrigating his bladder daily. The urine continued cloudy, however, and there was still some pain in the bladder and rectum. A few months later he had an attack of epididymitis, of which he was cured. Patient stated that he had lost flesh and strength and could only be up three or four hours at a time. Urination hourly during the day and about six times at night. Examination showed a well-nourished man. There was slightly roughened breathing over both lungs anteriorly. Heart, liver, and spleen normal. Thompson's searcher was obstructed by a soft, tender mass. Temperature, pulse, and respiration were normal. There was pain in the left loin on pressure. Urine clear, acid, 1022, contains albumin, pus cells, and triple phosphate crystals. Passed 23 ounces of urine in twenty-four hours. Bacilli found in the urine giving the appearance of tubercle or smegma bacilli. October 20: *Cystoscopy* under chloroform showed a condition of "vessie à colonne." The vessels were distended; otherwise nothing abnormal seen except at the trigonum, where there is a translucent, soft, easily bleeding, irregular, nodular mass. Urine, obtained with every precaution, was found to contain tubercle bacilli. November 1: *Epicystotomy* showed several large gray ulcerations on the trigonum. The right ureter was readily catheterized; the left after some difficulty. The ureteral catheters were left *in situ*. No urine was obtained from the left side. Urine from the right side showed the presence of albumin and red blood cells, but no bacilli. A specimen of this urine was injected into a guinea pig. The animal died three weeks later of exposure to cold; no other cause of death was found at the autopsy. December 3: Urine again found to contain tubercle bacilli. Suprapubic wound is nearly healed; left kidney is palpable. December 5: *Nephrectomy*, left side. The usual incision parallel to the ribs revealed a large, soft kidney with some adhesions around it. Artery and vein were tied off separately with heavy catgut ligatures. Two ligatures were passed around the ureter and it was cut between them, so as to have no leakage from the ureter into the wound. The kidney was then cut away. The ureter was pulled out into the wound and inspected. It was somewhat thickened and the question of excising it arose. In manipulating it the ligature slipped from the end of the ureter and its contents soiled the wound. The ureter was then sutured to the lower edge of the wound and a small drainage tube inserted. Both angles of wound closed with sutures, and rest of wound drained with tube and gauze. Patient reacted well. The urine could not be measured on account of the dribbling from cystotomy wound,

but it was deemed abundant. Fluid injected into the ureter readily passed into the bladder. December 19: Small stitch-hole abscesses. Urine contains albumin and pus cells. Bladder irrigated and iodoform glycerine injected. January 20: Has gained three and one-half pounds in weight; no bacilli in urine, number of pus cells is less. February 6: Suprapubic and ureteral openings persist. Has gained seven and one-half pounds in all. February 12: Severe pain before and during urination. Urine contains clots of blood, is acid, 1018, contains albumin, red and white blood cells. These bladder symptoms disappeared after injections of nitrate of silver. March 6: Ureteral sinus is closed. The suprapubic fistula closes for a few days and then reopens when patient strains to empty his bladder. March 15: Ureteral sinus remains closed. Suprapubic sinus is likewise closed. Capacity of bladder is 3½ ounces. Guaiacol injections. Patient urinates every hour and still passes clots of blood at times. Has been steadily gaining in weight. Repeated examination of the urine for tubercle bacilli failed to discover any. April 6: *Cystoscopy* was attempted under chloroform, but was not possible on account of hemorrhage in the bladder. April 30: Complains daily of pain in perineal region and in penis; also of pain travelling up from the bladder, especially when straining at stool. For past few days has a drawing sensation on the left side in the region of the ureter while urinating. May 2: *Ureterectomy*. Incision commenced at the point where the ureter had been stitched to the skin. The diseased ureter was soon isolated, cheesy material exuding from its upper end. As it was further isolated, the incision was continued downward and forward toward the os pubis. The ureter was followed down over the brim of the pelvis, lifted from the sheath of the iliac artery and vein, and at its entrance into the bladder was ligated with strong catgut and cut away. The peritoneum was not injured. The greater part of the wound was closed with button sutures, each angle being drained with a tube and gauze packing. Patient reacted well, passing 24 ounces of urine in twenty-four hours. It contained albumin and red and white blood cells. May 9: Wound healed by primary union. Passes bloody urine, especially after stool. Urine acid, cloudy, contains albumin and red and white blood cells. There is still some vesical tenesmus, and urination is frequent. Stypticin relieved the tenesmus. June 12: General condition is good. Patient states he has no more vesical tenesmus. Urine acid, clear, contains no more red blood cells, but considerable pus cells. Discharged cured.

1898, vol. ii., page 889, and 1899, vol. i., page 189. *Fistula following Nephrotomy; Nephrectomy; Cure.*—Tillie L., 35

years old, readmitted December 31, 1898. (The case is reported in full in Mount Sinai Hospital Reports, vol. i., 1898.) *Nephrectomy* was performed January 3, 1899. The incision was in the line of the previous scar. While dissecting the firm adhesions anteriorly, the peritoneum was opened and immediately sutured. The kidney substance was found greatly diseased, very little healthy cortex remaining. The vessels were separately ligated with heavy catgut and the ureter closed with a ligature. The greater part of the wound was closed with button sutures. The pathologist reported pyelitis (large abscess sac), atrophy of the kidney, chronic interstitial inflammation. Convalescence was uneventful and patient was discharged cured February 5.

1899, vol. i., page 1115. *Tubercular Pyelonephritis; Sepsis; Nephrectomy; Death.*—Fanny L., 36 years old, admitted June 13. Twelve months ago patient became pregnant. In the fifth month of gestation she began to have pain in the left loin; this pain was more or less constant. She was delivered of a healthy child three months ago. The puerperium was normal. As soon as she got out of bed thereafter, she began to have the same kind of pain, lasting from one to four hours. The pain originates in the loin and radiates down toward the left iliac region. Six weeks ago the patient for the first time noticed that the urine was white. Micturition is frequent and up to a few months ago was painful. Examination showed a pale, poorly nourished woman. Occupying the left loin there is a hard, movable mass. There is slight edema of the legs. Temperature 100°, pulse 110, respiration 24. Urine light colored, acid, 1006, contains albumin, many pus cells and bladder epithelium. Urea ½ grain to the ounce. There is a large sediment of pus present. June 18: Temperature 103°, pulse 110. *Harris segregator* introduced, and with it obtained cloudy, bloody urine from the left side and purulent urine from the right. June 20: Temperature 103.4°, pulse 108. *Nephrectomy* through an oblique incision. The kidney was found to be much enlarged. It was aspirated, but no pus was found. On stripping off the capsule of the kidney, it was seen that the organ was far advanced in tuberculosis, so a nephrectomy was performed. The pedicle was secured by an elastic ligature. The angles of the wound were closed with sutures. The condition after the operation was poor. Stimulating enemata were given every three hours. June 21: Temperature normal, pulse 100 to 112, respiration 26 to 32. Passed only seven ounces of urine, half of which was pus; vomited frequently. It was feared that the remaining kidney was diseased. June 22: Temperature 98.6°, pulse 108 to 125, respiration 24 to 32. Passed only one ounce

of urine with much pus. June 23: Pulse weak; infused a pint of salt solution. Only ½ ounce of urine secreted. June 25: Passed one ounce of urine; pulse 120, full and strong. By phlebotomy 4 ounces of blood were withdrawn and one pint of saline solution infused. Patient died at 4:30 A.M. June 27.

1899, vol. i., page 631. *Pyelonephritis; Nephrectomy (after two previous Nephrotomies); Cure.*—Gertrude K., 40 years old, admitted February 20. Seven months ago first attack of pain in right lumbar region, back, and right side of abdomen, radiating to the bladder. Was operated on at that time; pus was evacuated and a stone removed. A month later patient states she underwent another operation which was not satisfactory. A week later a third operation was performed, at which pus was again evacuated and several stones were removed. Since then a profusely discharging sinus has persisted. Examination showed a sinus in the right loin which leads downwards and inwards about five inches and through which urine continually exudes. A large mass, extremely tender on bimanual palpation, can be felt in the right loin; it extends to level of the umbilicus. Temperature 101.8°, pulse 110, respiration 24. Urine 43 ounces, acid, 1010, contains albumin due to a moderate amount of pus. Urea 5 grains to the ounce.

February 24: *Nephrectomy* by oblique incision from last rib to crest of ilium, just anterior to similar scar from former operations. The kidney and its capsule were firmly united, and were with difficulty developed from the fascia and peritoneum about them. The peritoneal cavity was opened and the colon was held back with a gauze packing. The ureter was tied with catgut. The vessels were first clamped and then secured with an elastic ligature and the kidney removed. The whole cavity was packed with iodoform gauze. Intravenous infusion was then performed. Patient required very energetic stimulation for twenty-four hours after the operation, but voided a large quantity of urine. Urine acid, 1008, trace of albumin due to pus cells; one grain of urea to the ounce, 42 ounces in twenty-four hours. Temperature did not become normal until March 14. The general condition improved steadily, although the urine continued to contain a trace of albumin and some pus cells when patient was discharged cured on April 18.

Ureterectomy was performed twice for tuberculosis. In one case (1898, vol. ii., page 1012) a tubercular kidney had been removed at the hospital five months previously. Pain in the region of the ureter, together with bloody and purulent urine, were the indications for ureterectomy. The case is reported in

full under nephrectomies. In the other case the kidney had been removed at the German Hospital, four years previously, for tuberculosis. Aspiration in the old scar showed the presence of an abscess, which, on incision, was found to be in communication with the ureter. The sinus persisted, the urine contained albumin, pus, and epithelium, and the ureter was accordingly extirpated.

1899, vol. ii., page 260. *Tuberculosis of Ureter; Ureterectomy; Cure.*—Henrietta K., 31 years old, admitted October 25. Nine years ago had both ovaries removed at Bellevue Hospital. In 1894 nephrorrhaphy was performed on the right kidney and in 1895 this kidney was removed at the German Hospital. Since then patient claims to have been well until five days ago, when she was suddenly seized with severe pain in suprapubic and right iliac regions. At the same time there was marked irritability of the bladder, urination being frequent, painful, and in small amounts. The bladder symptoms improved under medication, but pain in right iliac and lumbar regions persisted. Patient states that urine at present is thick and turbid, but not red. Inquiry elicited the fact that the kidney had been removed for tuberculosis. Examination showed a poorly nourished woman. In right lumbar region there is marked rigidity of the muscles and great tenderness from the ribs to the crest of the ilium. Temperature 103°, pulse 112, respiration 28. October 27: *Incision of Abscess around Ureter.* Aspirating needle introduced through lower part of old scar showed the presence of pus. Incision opened an abscess containing about ½ ounce of yellowish-black, odorless pus. Temperature dropped after this, but slight elevations persisted. Pain along the course of the right ureter likewise persisted. Methylene blue injected into the wound appeared immediately afterward in the bladder. Urine acid, contains albumin, pus, and epithelium. Repeated examinations failed to show the presence of tubercle bacilli. The wound showed no tendency to heal, although the discharge was slight. December 15: *Ureterectomy.* Incision made from urinary fistula in right lumbar region, downwards in curved direction to the inguinal region. Parietal peritoneum was stripped away, and with some difficulty ureter was found firmly bound down by chronically inflamed tissues. Ureter was dense and hard and of thickness of little finger. Its upper end was secured with a silk ligature. In stripping back the peritoneum it was twice torn; the upper rent was closed; the lower one could only be partly closed, and gauze packings were introduced to protect the peritoneal cavity. The patient was then

placed in the lithotomy position and the vagina incised to the right of the cervix. Dressing forceps were passed up through the vaginal incision into the extraperitoneal wound, and the ligature constricting the upper end of the ureter was placed in the grasp of the forceps. The ureter was then drawn down into the vagina. The wound was then closed with through-and-through button sutures, a gauze drain being left in the upper angle. Patient was again placed in the lithotomy position and the ureter cut off as close to the bladder as possible. Gauze packing inserted into the vagina. December 16: Temperature 100°, pulse 100, respiration 24. Passed 20½ ounces of urine. January 20: Wound almost closed. Complains of pain in region of left kidney. Urine acid, 1022, heavy trace of albumin and many pus cells present. January 28: Discharged cured. Returned to hospital two weeks later for pain in urethra, from which a stone one-half inch long, that was protruding, was easily extracted.

Perinephritic abscess was treated five times by incision and drainage. The history in all the cases was of recent origin, two to seven weeks. In four of the cases there was pain in the affected side. In one case (vol. i., page 862), that of a child of 10 years, there was a history of having received a blow in the side four weeks before entering the hospital; but as there were never any subjective symptoms present, it was not possible to determine if the blow was an etiological factor. In all of the cases there was fever present and a rapid pulse; in one case chills had occurred repeatedly. The examination in each case showed a tender mass in the lumbar region of the affected side. In two cases aspiration was resorted to and pus was found. In all the cases only a superficial incision was required to evacuate a large amount of pus. All of the patients made rapid recoveries.

1899, vol. ii., page 644. *Perinephritic Abscess; Incision; Cure.*—Louis R., 39 years old, admitted September 1. Was taken sick four weeks ago with pain in left side of abdomen, headache, fever, and constipation. Has had irregular attacks of chills and fever during these weeks. Has vomited several times. One week ago patient claims to have discharged a quantity of pus per rectum, following the giving of an olive-oil enema. Examination shows a fairly well nourished man, with a tongue slightly moist and coated with a brown fur. Pulse small, rapid, and regular. Examination of the abdomen

showed a flat note in the left lumbar region, extending from free border of the ribs to crest of ilium and running forwards as far as axillary line. The rest of the abdomen was distended and tympanitic. There was distinct resistance in the left lumbar region, and bimanually an indefinite tender mass could be felt. Temperature 102.2°, pulse 140, respiration 60. Widal reaction was negative. Urine was acid, 1020, contained 2 per cent of urea, a few pus and epithelial cells, and some hyaline and granular casts. Aspiration in the left lumbar region revealed the presence of pus. Admitted from the Medical Department. September 4: *Incision of Perinephritic Abscess.* Usual transverse incision on left side encountered a large sacculation of pus; no remnant of kidney could be felt. Cavity was drained with two large tubes and gauze. Temperature dropped to normal, urine became normal, and patient was discharged cured October 1. (Moschcowitz.)

1899, vol. ii., page 812. *Perinephritic Abscess; Incision; Cure.*—Bernard M., 40 years old, admitted September 24. Patient had been discharged from Mount Sinai Hospital seven weeks ago, after having undergone an operation for urethral stricture and perineal abscess. This wound is not yet entirely healed. Sounds were passed regularly, the last time one week ago. About that time patient began to complain of severe pain in left lumbar region, which soon extended downward as far as the left knee. Pain is constant, very severe at times, so that leg cannot be straightened. No chills, no fever, no vomiting. One week before onset of the severe pain there was slight pain in the left lumbar region. The abdomen was tense and rigid, especially on the left side, where a large mass could be felt reaching from the ribs to the pelvis. There was tenderness over this area, also dulness and some tenderness in the left lumbar region. Temperature 102°, pulse 110, respiration 24. Urine was acid, 1010, contained albumin and some pus cells. September 25: *Incision of Perinephritic Abscess.* As soon as the skin had been incised in the left flank, a large amount of fetid pus escaped; drainage with tubes and gauze. After operation, chill and temperature 103.2°. Thereafter rapid, uneventful recovery. Discharged cured October 29. (Lilienthal.)

1899, vol. ii., page 1203. *Perinephritic Abscess; Incision; Cure.*—Betty Z., 55 years old, admitted from Medical Department November 24. Seven weeks before entering the hospital patient began to have pain and dragging sensations in the left side of the abdomen. This pain has persisted and patient claims to have vomited almost daily. Has lost considerable flesh and strength. Temperature 100.6°, pulse 92, respiration 24. Urine contains trace of albumin, hyaline casts, and a few

pus cells. November 24: On examination a mass was felt in the left lumbar region and a smaller, movable mass in the right flank. The right mass was taken to be the kidney on that side. The left mass was aspirated and pus was found. *Incision of Perinephritic Abscess.* A large, transverse incision made in the left flank. As soon as the muscles had been divided a considerable quantity of pus was discharged. Angles of wound were united with sutures and the cavity drained with tubes and gauze. Recovery was uneventful and patient discharged cured December 23.

1899, vol. ii., page 767. *Perinephritic Abscess; Incision; Cure.*—Isidore K., 22 years old, admitted April 2. During past three weeks pain in left lumbar region, not constant, but severe whenever patient moves about. Has had slight fever in the daytime, more at night accompanied by sweats, which are often very profuse. On admission temperature 99°, pulse 160, respiration 24, some prostration. Urine acid, 1024, no albumin, no pus, no casts. April 3: *Incision of Perinephritic Abscess* by an oblique incision in left lumbar region. A large amount of pus was evacuated through a superficial incision. No connection could be felt with the kidney; drainage with tubes and gauze. Immediate improvement took place. The wound discharged freely, but no urine could be detected in the discharge. Methylene blue injected into the wound came through into the bladder. Passes about 40 ounces of urine daily. April 24: Methylene blue injected into wound appeared in urine one and one-half hours later. Urine contains no albumin, but a few pus cells. April 28: Urine found to be full of pus; no blood or casts. Slight discharge from wound, not urinous. General condition very good. May 2: *Harris segregator.* Urine from both sides contained albumin, pus, and red blood cells. May 6: Wound healed and patient discharged cured.

1899, vol. i., page 862. *Perinephritic Abscess; Incision; Cure.*—Mary S., 10 years old, admitted February 27. Four weeks ago mother noticed that the child, who was always poorly nourished, looked bad. About this time the child was struck in the side by a boy. Three weeks ago mother noticed a mass in the child's left side. This mass has increased in size, but child complained of no pain; it was in bed during this time. No cough, no sweats, no urinary symptoms; in fact, no subjective symptoms at all. Examination showed a large, exquisitely tender and fluctuating mass in the left loin, with considerable bulging below the free border of the ribs. March 3: *Incision of Perinephritic Abscess.* Almost immediately beneath the skin a large abscess containing thick, yellowish-white pus was opened. Before the operation, temperature 100.4°, pulse 130,

respiration 24. Urine was turbid, acid, 1014, contained albumin due to considerable pus. After the operation, passed 13 ounces of urine containing pus cells. For a few days there was blood in the stools. General condition improved rapidly. A moderate number of pus cells persisted in the urine. April 28: Wound entirely healed; discharged cured. (Lilienthal.)

Genito-Urinary Tract—103 cases, 3 deaths.

By A. V. Moschcowitz, M.D.

	Totals.	Deaths.
Catheterization of ureters	2	
" " " retrograde	1	
" " " Harris segregator	9	
Cystoscopy	22	
Castration for endothelioma of testis	1	
" " suppurative orchitis	1	
" " sarcoma of testis	1	
Curetting of recto perivesical fistula	1	
Circumcision	5	
Cauterization of prostate	1	
" " " (Bottini)	1	
" " urethral fistula	3	
Extirpation of epididymis and part of vas deferens	1	
" of epididymis, vas deferens, and seminal vesicle for tuberculosis	1	
Hydrocele of tunica vaginalis, aspiration	1	
" " " " (Von Bergmann's operation)	1	
" " " " (Volkmann's operation)	1	
" " cord, radical operation	1	
" " " strangulated	1	1
Removal of impacted calculus from urethra	1	
Meatotomy	6	
External urethrotomy	11	
Internal "	7	
Incision of periurethral abscess	3	
Plastic operation for urethral fistula	1	
Recto vesical abscess, incision and drainage	1	
Suprapubic cystotomy	5	
" " for tumor of bladder	1	
" " " retention	1	
" " " calculus	1	
" " " hypertrophy of prostate	1	
" " " purulent cystitis	1	1
" " " retention, hypertrophy of prostate	1	1
Extirpation of atheroma of perineum	1	
Sinus of scrotum, incision and curettement	1	
Necrosis of testicle, resection	1	
Varicocele, radical operation	4	

There is a separate service at the hospital for diseases of the genito-urinary organs, distinct from the general surgical service, and a report of that service is rendered by the attending

surgeon, Dr. William F. Fluhrer. In his absence the cases have been placed into the general surgical service, and above report is an account of such cases only. Three deaths occurred in this department, the histories of which are detailed below. Death was caused in one case by exhaustion following pharyngeal diphtheria; in the second case, by sepsis which had existed before the operation; and in the third case, by pulmonary edema. In addition, there is also reported the history of a case of extirpation of one-half of the genital tract for tuberculosis, which is of some interest as a case of radical operation for this malady.

1899, vol. ii., page 514. *Strangulated Hydrocele of the Cord; Operation; Nasopharyngeal Diphtheria; Retropharyngeal Abscess; Operation; Death.*—Benny L., 2 years old, was admitted to the hospital on August 5, 1899, with an acutely inflamed swelling in the right scroto-inguinal region. The mother gives account of an undescended testicle on that side, with inflammation in this region of two days' standing. Complete scrotal hypospadias; no signs of intestinal obstruction. Operation on admission; incision about three inches long, over the largest diameter of the tumor, extending into the scrotum; a thick-walled sac was found (which at first was taken to be a hernia of the bladder) containing a fatty fluid, and adherent to its outer side was the atrophied testis. Ablation of the testicle and extirpation of the hydrocele of the cord. Suture in layers, completely closing the inguinal canal. Two days later the child developed a naso-pharyngeal diphtheria (Klebs-Loeffler bacilli) and had to be isolated. After this had run its course a retropharyngeal abscess made its appearance, which was incised externally and drained. Difficulty in feeding the child, and shortly thereafter the child died of loss of strength.

1899, vol. ii., page 235. *Hypertrophy of Prostate; Pulmonary Edema; Death.*—Bernard S., 77 years of age, was admitted to the hospital with a typical history and symptoms of hypertrophied prostate extending over two years. Fourteen days after admission to the hospital the patient, suddenly and without premonition, developed symptoms of pulmonary edema, to which he succumbed in spite of energetic stimulation and the usual treatment.

1899, vol. ii., page 436. *Impacted Urethral Calculus; Calculi in Bladder; Calculi in Diverticulum of Bladder; Pyelonephritis; Phthisis; Septicemia; Suprapubic Cystotomy; Death.*—Philipp E., 70 years old, entered the hospital August 24, 1899.

Past history is obtainable only with difficulty, on account of the mental condition of the patient; the following data appear to be probable: The patient was apparently well up to four weeks ago. At this time he noticed for the first time a difficulty in micturition; this gradually increased, until urination ceased altogether one week later, so that he was compelled to consult a physician, since which time the patient had to be catheterized twice daily. About one week ago some black, gangrenous areas appeared on the glans and dorsum of penis.

Physical examination revealed a tuberculosis of both apices and valvular lesion of the heart. The glans penis is swollen and edematous; from the meatus there oozes a purulent, fetid discharge; extending from the frenum into the meatus there is a small ulcer covered with a diphtheritic membrane; on the dorsum of the glans, extending up to and beyond the corona, there is an ulcer about the size of a quarter, covered with a black, gangrenous membrane; within the urethra, just behind the glans, a nodule can be felt; a probe inserted elicits stone impaction.

Operation upon admission; anesthesia, 6 per cent. cocaine injected into the urethra. Incision of the meatus, so as to permit the introduction of a narrow-bladed dressing forceps; extraction of a phosphatic calculus about the size of a large bean; irrigation of anterior and posterior urethra and of bladder, the latter containing a large amount of pus and blood. Stone searcher revealed the presence of stone within the bladder. Wet dressing to penis. The subsequent treatment consisted of frequent irrigation to bladder and the internal administration of urotropin. Considerable stimulation was necessary, and, as patient appeared to be rapidly losing strength, probably from absorption from bladder, it was decided to perform suprapubic cystotomy in spite of his very precarious condition. Suprapubic cystotomy, under cocaine anesthesia, on August 30. In Trendelenburg's position, on holding the bladder wall apart three stones were readily seen and extracted. Incidentally there was also seen an opening in the bladder wall which at first was taken to be the mouth of the dilated right ureter, but the introduction soon revealed a diverticulum of the bladder which was practically filled with calculi. Under the guidance of the eye forty stones, varying in size from a pea to a small, hard nut, were removed. Drainage of the diverticulum and of the bladder by means of separate tubes. Exitus next day without abatement of the septic symptoms.

1899, vol. ii., page 572. *Tuberculosis of Left Genital Tract; Extirpation; Recovery.*—Bernhard W., 35 years of age, bar-

keeper, entered the hospital August 18 with following history: Four months ago he noticed a small nodule on the left testicle, which has gradually increased in size up to the present time, when it is about the size of a hazelnut. Examination reveals in the left testicle the nodule above mentioned; the vas deferens can be traced up to the external inguinal ring and has the thickness of a small lead pencil; per rectum the corresponding seminal vesicle can be felt as a nipple-like projection, but is not adherent to the adjacent structures. No tubercle bacilli found in the sputum, nor in the liquid expressed from the seminal vesicles and prostate. Though the seriousness of the malady was explained to the patient, he was averse to castration (*i. e.*, to the removal of the testes), hence following operation was carried out on August 22. Incision as if for castration. After bringing the testicles into the wound, the entire epididymis was dissected away from the testicle (which appeared to be normal), taking care not to injure the spermatic artery, and with it as much of the vas deferens was pulled out as possible. Before dividing it a ligature was placed around the central stump, which was to serve in the subsequent operation as a guide. Division of the vas deferens, when the central stump immediately slipped back into the abdominal cavity. The patient was now placed in the lithotomy position and a sound introduced into the bladder, so as to prevent injury of the urethra. Through a curved incision the recto-urethral space was opened, and by blunt dissection the prostate was reached, after division of some fibres of the levator ani; with the finger in the rectum the diseased seminal vesicle could be brought down very readily, and after division of the ejaculatory duct the seminal vesicle was extirpated entirely with the still attached portion of the vas deferens. It was very regrettable that the sound introduced into the bladder did just the opposite of what it was supposed to do, that is, to prevent injury to the urethra. (An elastic bougie would no doubt have been better.) A soft catheter was consequently introduced into the bladder and the rent in the urethra closed by sutures. The subsequent course was uneventful, except for an alcoholic gastritis which gave considerable trouble. The catheter was removed at the end of a week, but there was still a sinus in the perineum. Patient was discharged cured, the sinus still persisting. Subsequently (after four weeks) patient presented himself for examination and sinus was found to be completely closed.

OPERATIONS ON THE MAMMARY GLAND—35 cases, no deaths.

Adenoma, excision of	2
Adenofibroma, excision of	1
Carcinoma, amputation for	13
" recurrent, excision of	2
Fibroma, intracanalicular, extirpation	1
Mastitis, acute, incision and drainage	1
" " suppurative, incision and drainage	10
" secondary	2
Papillary cystoma, amputation for	1
" " " extirpation of	1
Sarcoma, amputation for	1

The interest in this series of cases centres in the radical operation for carcinoma of the breast. Though there are thirteen cases of carcinoma of the breast recorded, a thorough radical operation was attempted in eleven cases only, the remaining two cases being so far advanced that a thorough removal of the diseased area was absolutely out of question; in these two cases the breast alone was amputated, so as to free the patient from the enormous size of the growth.

In the cases in which a radical operation was attempted, in the greatest majority of instances the operation was performed according to Halsted's method—an elliptical incision around the nipple and going wide of the growth, the incision then being carried upward and outward, usually above the anterior fold of the axilla to the insertion of the pectoralis major muscle; breast, both pectoral muscles, and axillary contents were then removed in mass; all bleeding vessels were ligated at the time of division; drainage through a posterior incision and suture of the wound as far as possible; when this was impossible the remainder was subsequently covered by Thiersch skin grafts. The immediate result was, as a rule, a very happy one, all but one case healing by perfect primary union; and there appeared to be no interference with the function of the arm.

OPERATIONS ON THE LYMPHATIC GLANDS—24 cases, no deaths.

Cervical—12.	
Suppurating, incision and drainage	1
Carcinomatous, recurrent, extirpation	1
Tubercular, extirpation	8
**Suppurating, " **	1
**Sarcomatous, " **	1

Submaxillary—1.
Carcinomatous, extirpation 1
Axillary—3.
Suppurating, incision and drainage 2
Tubercular, extirpation 1
Inguinal—7.
Suppurating, incision and drainage 4
Tubercular, extirpation 2
Chancroidal suppurating, incision and drainage 1
Pelvic—1.
Suppurating, incision and drainage 1

REMOVAL OF TUMORS—29 cases, no deaths.

Angioma of cheek, electrolysis for 1
" " neck, extirpation 1
Angiosarcoma of abdominal wall 1
Cystoma of thigh, extirpation 1
Dermoid cyst of neck, extirpation 1
Epithelioma of lip, extirpation, cheiloplasty (Bruns) 1
" " forehead 1
" " lower jaw 1
Fibroma of forearm 1
Fibromyoma of abdominal wall, partial removal 1
Goitre, parenchymatous, extirpation 1
" cystic, extirpation of cysts 1
Carcinoma of thyroid gland, extirpation 1
Lipoma of neck 1
" " back 1
Polypus of ear 1
Papilloma of vulva, extirpation 1
Ranula 1
" cauterization 1
Subhyoid cyst 1
Sarcoma of forearm, extirpation 1
" " jaw, exploratory operation 1
" " leg 1
" " scapula, exploratory operation 1
" " " excision [1] 1
" " tibia extirpation 1
" " thigh 1
Secondary carcinoma of sterno-cleido-mastoid muscle 1
Tumor of thigh, exploratory operation for 1

1899, vol. i., page 497. *Cystic Goitre; Operation; Cure.*—Abraham B. entered the hospital for the relief of a goitre which has been growing for nearly seventeen years, but has lately become markedly larger, and is the cause of dyspnea and palpitation of the heart. Operation March 13, 1899, chloroform anesthesia. Transverse incision with the ends curved slightly upward; extirpation of a large cyst from the left lobe of the thyroid gland and of a smaller cyst from the right lobe. Drainage. Recovery after secondary suture.

[1] Reported in detail in Jacobi's "Festschrift," 1900.

1899, vol. ii., page 965. *Parenchymatous Goitre; Operation; Cure.*—Morris T. was operated upon at this hospital, some years ago, for a tumor of the thyroid on the right side and was discharged cured. He now returns with a tumor upon the left side. Operation November 10, 1899. Enucleation of a tumor about the size of a lemon, through a vertical incision parallel with the sterno-cleido-mastoid muscle. Discharged cured six days later.

1899, vol. ii., page 63. *Adenocarcinoma of Thyroid; Operation; Discharged with Recurrence.*—Aaron C., 46 years old, entered the hospital June 11, and gives the following history: Has had difficulty with the thyroid gland for the past five years, and was repeatedly treated with aspirations and injections, and once also by an excision. Duration of the present tumor, eight months. On the left side of the neck, extending from the clavicle to the level of the cricoid cartilage and beneath the sterno-cleido-mastoid muscle, there is a tense, fluctuating mass, the size of an egg, which pushes the larynx to the right. Other smaller tumors are to be felt in the median line and on the right side. Patient complains of dyspnea and aphonia.

Operation June 16, 1899. Vertical incision in the median line, which is joined at its middle by a short lateral incision towards the left side. On incising the tumor mass a quantity of soft, grumous material appeared and was curetted away. Extirpation of the tumor as far as possible, as it sent numerous prolongations between larynx and esophagus and between esophagus and vertebral column. Drainage. Suture. Discharged July 10 with already beginning recurrence. Pathological diagnosis, adenocarcinoma of thyroid.

OPERATIONS ON BURSAE—3.

Prepatellar, extirpation	1
" suppurative, incision and drainage	1
Pretibial, " " " "	1

AMPUTATIONS—27 cases, no deaths.

Finger	8	Metacarpal bone	1
Hip	1	Thigh	5
Humerus	1	Wrist	1
Leg	3	Toe	7

Of above twenty-seven cases, eleven may justly be classified as major amputations, but all terminated in recovery. The subjoined history of a case of amputation through the hip joint is of considerable interest.

1899, vol. ii., page 1213.—Samuel N., 48 years of age, was operated upon at this hospital eight months ago for a sarcoma of the thigh. Recurrence noted three months ago with a remarkably rapid growth. Operation November 8, 1899, under chloroform anesthesia. Preliminary laparotomy exposing the common iliac artery for the purpose of compression; this was followed by an incision in Scarpa's triangle and ligature of the femoral artery and vein; to this was joined a circular incision around the thigh well upwards of the tumor, and from the latter a short vertical incision over the greater trochanter. Exarticulation of the hip. Suture of the laparotomy and amputation wound. Drainage. Perfect recovery, patient being discharged cured on December 25, 1899. Patient is perfectly free from recurrence at the time of writing this article, April 17, 1900. Pathological diagnosis: Mixed-cell sarcoma involving the soft structures.

During the operation it was very evident what absolute control over the hemorrhage can be obtained by compression of the iliac artery through a laparotomy wound, followed immediately by ligature of the femoral vessels.

OPERATIONS ON JOINTS—30 cases, 2 deaths.

	Total.	Deaths.
Resections—15.		
Ankle, for tuberculosis	1	
Elbow, for ankylosis after dislocation	4	
Knee, for deformity	3	
" " tuberculosis	3	
Hip, " "	3	
Sterno-clavicular joint, for tuberculosis	1	
Incision and drainage—11.		
Shoulder and ankle, suppurative, septic	1	1
Ankle, suppurative	1	
Elbow, "	1	
Hip, "	2	
Knee, for retention after resection	2	
" **Mayo's operation**	4	1
Antiseptic irrigation of joints—4.		
Knee	4	

1899, vol. i., page 1095. *Suppurative Arthritis of both Shoulder and Left Ankle Joints; Pyemia; Death.*—Fanny S., 44 years of age, was admitted to the hospital on June 19 in a condition of pyemia (temperature 104°, and almost pulseless) with suppurating foci in both shoulder joints and in left ankle joint. Operation upon admission, consisting of incision, irrigation and drainage of the affected joints. Though patient rallied after the operation, it was without permanent benefit, patient dying three days later.

1899, vol. i., page 810. *Suppurative Arthritis of Knee Joint; Septicemia; Death.*—Annie D., 42 years old, was admitted to the hospital on April 19 with a history of suppuration in right knee joint of six weeks' standing. General condition very bad, with the typical picture of septicemia (temperature 103°, pulse 132). Operation April 21; opening and drainage of the joint through Mayo's incision. After the operation patient was losing ground steadily, and amputation of the thigh was advised as the only possible life-saving measure, but patient died before its execution.

OPERATIONS ON BONES IN CONTINUITY—73 cases, 3 deaths.

	Total.	Deaths.
Osteoplasty—3.		
Femur, for spontaneous fracture	1	
" " ununited "	1	
Ulna and radius, for ununited fracture	1	
Osteotomy for deformity—8.		
Femur, for deformity of knee	1	
" cuneiform	1	
Inferior maxilla	1	
Tibia for genu varum	5	
Osteotomy for osteomyelitis or suppurative disease—30.		
Femur	11	3
Fibula	1	
Humerus	1	
Inferior maxilla	4	
Phalanges	2	
Sternum and ribs	2	
Tibia	6	
Ribs	2	
Mastoid process for tubercular caries	1	
Osteotomy for necrosis—30.		
Carpus	1	
Femur	4	
Fibula	2	
Inferior maxilla	2	
Phalanx	1	
Radius	3	
Tibia	17	
Resections in continuity—2.		
Inferior maxilla, for myxosarcoma	1	
" " " giant-celled sarcoma	1	

1899, vol. i., page 449. *Ununited Fracture of Radius and Ulna; Operation; Perfect Result.*—Wolf E., 23 years of age, was admitted to the hospital December 13, 1898, with following history: On July 4, 1898 (*i. e.*, six months previous to admission to the hospital), patient had his forearm caught in a dough-mixing machine and sustained a compound fracture of both radius and ulna. He was immediately attended to at one of the city hospitals, but the bones have never united and the

original wound never healed. Examination revealed perfect mobility at the seat of the fracture, and a sinus, discharging pus, leading down to the radius; the distal fragments are abducted and pronated; pseudo-ankylosis of the wrist joint; marked eczema over the entire forearm, hence operative procedure was delayed for some time. Operation January 24, 1899, chloroform anesthesia, under artificial anemia by an Esmarch bandage. Through an incision on the radial side of the forearm the ununited ends of the radius were exposed, and after curetting away the soft existing callus and the intervening granulation tissue, the end of the proximal fragment was shaped into a cone, while the end of the distal fragment was hollowed out into a cone-shaped cavity for the reception of the upper fragment; approximation of the fragments by means of a strong silver wire. A similar procedure was repeated on the ulna. After correction of the deformity, closure of the external wound. February 1: No visible union by X-ray. February 10: Same condition. February 20: Some union visible. March 1: Distinct union visible, but slight mobility still present. March 18: By X-ray bony union appears to be complete, but there is still a false point of motion. March 21: Silver wire sutures removed. March 25: Discharged with slight false point of motion. Patient presented himself six weeks later for examination: union found to be complete; no interference with motion.

1899, vol. i., page 222. *Osteomyelitis of Femur; Septicemia; Operation; Death.*—Dorothea Sch., 13 years old, was admitted to the hospital January 27, 1899, with an osteomyelitis of femur following a trauma; condition of sepsis marks the clinical picture (temperature 102°, pulse 136). Osteotomy on January 30, opening up the entire length of the medullary cavity. Death on February 13; causa mortis, septicemia.

1899, vol. i., page 590. *Osteomyelitis of Femur; Pyemia; Death.*—Frank K. was admitted to the hospital March 29, 1899, with an osteomyelitis of the femur (temperature 104° to 105.2°, pulse 110) which appeared to have its focal entrance in an ulcer of the great toe resulting from the application of an irritating corn salve. Upon admission the hip joint was aspirated, but with negative results; cultures from the blood, however, revealed the presence of staphylococcus aureus. Immobilization of the limb. March 31: Osteotomy of the femur, uncovering in its entire length the medulla; curettage and drainage. Inunctions of Credé's ointment ordered. Within the next few days numerous secondary abscesses appeared on the shoulder, neck, ear, liver, etc., which were incised and drained. Patient continued septic and died April 13.

1899, vol. ii., page 37. *Acute Osteomyelitis of Femur; Septicemia; Death.*—Jacob L. was admitted to the hospital with an enormous subperiosteal abscess of the lower half of the femur down to the knee joint (temperature 105°, pulse 116). Operation on admission. Ten extensive incisions were made in various parts of the thigh down to the periosteum (the bone was denuded of its periosteum at one minute point only) and drained by means of large drainage tubes. Patient's condition on the operating table was so precarious that it was not deemed advisable to proceed with the osteotomy. No improvement whatsoever followed the operation, and in spite of energetic stimulation patient died thirty-six hours later.

OPERATIONS ON BLOOD VESSELS—6 cases, 1 death.

	Total.	Deaths.
Ligation of external iliac artery for aneurism of deep femoral	1	1
Varicose veins of leg, excision	4	
" " " " Trendelenburg's operation	1	

1899, vol. i., page 727. *Aneurism of Profunda Femoris; Ligature of External Iliac Artery; Pneumonia; Death.*—Max D., 60 years of age, entered the hospital for the relief of a swelling of the right thigh which is the cause of such agonizing pain that it makes his life unbearable. Examination revealed the presence of a large aneurism of the deep femoral artery. Operation April 20, 1899, under chloroform anesthesia. Incision parallel to Poupart's ligament down to the peritoneum; retraction of the peritoneum, and ligature retroperitoneally of the external iliac artery by three strands of strong catgut; suture of the incision. Wound healed by primary union five days after the operation; no visible pulsation in the aneurism. On the sixth day patient developed a pneumonia, to which he succumbed four days later.

PLASTIC OPERATIONS—40.

Skin-grafting (Thiersch)	23
" " (Krause)	1
Rhinoplastic	4
Cheiloplasty for harelip	1
" " epithelioma	1
Plastic on face for contraction after burn	1
" " neck for cicatricial contraction	1
" " elbow for cicatricial contraction after burn	1
" " elbow and shoulder for cicatricial contraction after burn	1
" " knee for deformity	1
Resection of sterno-cleido-mastoid for torticollis	1
Transplantation of flap from abdomen to dorsum of hand	2
Tenotomy	2

MINOR OPERATIONS—145.

Aspiration of chest	3
" " " and liver	1
" secondary to appendicitis	1
" of tubercular abscess of hip	2
" exploratory, of hip	1
" of right hypochondrium	1
" " lumbar region	1
" " pericardium	1
" " mastoid region	1
" " tumor of thigh	1
Adenoids, removal of, and tonsillotomy	2
Curettement of uterus	5
Correction of talipes varus	2
Curetting of sinus of abdomen	4
" " " " ankle	1
" " " " forearm	2
" " " " hip	3
" " " " leg	2
" " " " neck (tubercular)	1
" " " " thigh	6
" " thigh for burn	1
Excision of ulcer of leg	1
" " fistula of neck	1
Extirpation of submaxillary glands	1
" " ranula	1
" " submucous fibroid of uterus	1
Empyema, incision and drainage	1
Ingrown toenail, Anger's operation	1
Intravenous saline infusion	62
Lumbar puncture	1
Perineal abscess, incision and drainage	1
Perineorrhaphy	1
Subcutaneous saline infusion	5
Secondary suture	25
Trachelorrhaphy	1

INCISION AND DRAINAGE—91 cases, 1 death.

	Total.	Deaths.
For cellulitis—55.		
Of leg	9	
" ankle	4	
" elbow and forearm	3	
" face	1	
" finger	2	
" foot	3	
" hand	11	
" " and forearm	1	
" neck	5	
" " angina Ludovici	2	
" knee	1	
" shoulder	3	
" thigh	10	
For abscess—30.		
Of axilla	4	
" arm	1	
" abdominal wall	2	
" back and buttock	4	
" chest wall	1	
" hip	2	
" neck	1	
" lumbar region	1	
" mediastinum	1	
Peritonsillar	2	1
Of parotid gland	1	
" submaxillary gland	1	
Subphrenic	1	
Of inferior maxilla	1	

	Total.
For abscess—	
Of shoulder	1
" sacrum	1
Tubercular, of shoulder	2
Tubercular, of foot	1
" " thyroid region	1
Tubercular, psoas abscess	1
For carbuncle—2.	
Of neck	1
" back	1
For gunshot wound—2	
Of arm	1
" hand	1
For trauma—1.	
Of foot	1
For tenosynovitis—1.	
Of arm, suppurative	1

1899, vol. ii., page 35. *Peritonsillar and Pharyngeal Abscess; Aspiration of Blood into Bronchi; Death.*—Emil B., 40 years old, was admitted to the hospital on July 4, 1899, seeking relief for a large peritonsillar and pharyngeal abscess which followed the extraction of a molar tooth. Patient could not separate the jaws on account of excruciating pain. Patient was advised against the administration of an anesthetic, but he insisted upon it. Operation upon admission; chloroform anesthesia. In Roser's position, with the head dependent, a vertical incision was made through the anterior pillars of the fauces, evacuating some very fetid pus; considerable hemorrhage followed, and during the subsequent struggle the patient aspirated some of the blood. Artificial respiration and tracheotomy performed, but all efforts at reviving the patient were unsuccessful. Autopsy revealed, as the cause of death, asphyxia due to aspiration of blood into the bronchi; pulmonary edema.

OPERATIONS ON THE RECTUM AND ANUS—170 cases, 1 death.

	Total.	Deaths.
Carcinoma of rectum, Rydygier's operation	1	1
Cauterization, linear, for prolapse of rectum	4	
" of ulcer of rectum	2	
Exploratory operation for stricture of the rectum	1	
Dilatation of sphincter ani for fissure	6	
Fistula in ano, division and packing	39	
" " " extirpation and suture	1	
Hemorrhoids, clamp and cautery	84	
" ligature	6	
Ischio-rectal abscess, incision and drainage	20	
Proctoplasty	1	
" for prolapse of rectum	1	
" after ischio-rectal abscess	1	
Sphincteroplasty	1	
" and perineorrhaphy for recto-vaginal fistula	1	
Colpopexy for prolapse of rectum	1	

1899, vol. ii., page 701. *Carcinoma of Rectum; Operation; Toxemia; Death.*—Gussie H., 34 years old, entered the hospital on September 26, 1899, with a history of obstinate consti-

pation extending over one year; alvæ mixed with pus and blood. Rectal examination revealed a tumor, the size of a fist, involving the rectum and the perirectal tissues, extending from about two inches above the anus upward beyond the reach of the examining finger; the lumen of the rectum constricted, so as to barely admit one finger; the tumor encircles the gut. September 28: Exploratory celiotomy to determine the exact upper limit of the tumor, which was found to be, also the first part of the rectum. October 2: Temporary resection of the sacrum and extirpation of the coccyx; atypical resection of the rectum and suture of the proximal stump into the sacral wound. (The tumor was found to be adherent to the vagina and uterus, from which organs it was separated with considerable difficulty. Quite extensive hemorrhage from the sacra media vessels, so that intravenous infusion became necessary.) Death on October 6 with symptoms of toxemia.

1899, vol. ii., page 582. *Prolapse of the Rectum (very large); Operation; Discharged Improved.*—Melech W., 31 years old, was operated upon at this hospital for a double inguinal hernia and for prolapse of the rectum, the cure of the latter having been attempted by a plastic operation on the posterior wall. He now (two months after his discharge) returns to the hospital with a slight recurrence of one hernia and with a more marked prolapse, seeking relief particularly for the prolapse. Examination of the rectum reveals entire absence of tone in the sphincter, and, upon straining, a prolapse (particularly the posterior wall) of the rectum, the size of a large fist. Operation July 21, chloroform anesthesia. Through an incision extending from about one inch in front of anus backward to the coccyx and encircling the anus, the lower three inches were liberated from the surrounding structures; excision of a wedge-shaped piece from the posterior wall and suture of the edges of the wound. The rectum was then twisted on its axis about 160° and was fastened in place by heavy silk sutures to the margins of the wound. The temperature began to rise two days after the operation, and, retention being apparent, the sutures holding the rectum in place had to be removed, and subsequently the entire wound cavity had to be reopened and drained. Considerable retraction of the rectum into the bottom of the wound; large amount of very fetid discharge, requiring frequent dressing. Ultimately patient was discharged improved, with good control of rectum.

SYNOPSIS OF DISEASES TREATED IN THE DEPARTMENT OF GENERAL SURGERY.

	Operated.			Not operated.			Cured.			Improved.			Unimproved			No treatment.			Died.			Total.		
Scalp—6.	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Phlegmon									1															1
Lacerated wound	1						1															1		
Rodent ulcer of forehead	1						1															1		
Hematoma						1			1															1
Contusion and laceration of face						1			1															1
Wounds, fractures of inferior maxilla, clavicle, phalanges, shock						1													1					1
Spine and Cord—6.																								
Anterior poliomyelitis															1									1
Compression myelitis, osteitis, pachymeningitis	1									1												1		
Spondylitis and abscess	1						1															1		
Fracture of twelfth dorsal vertebra, paralysis of bladder and rectum	1									1												1		
" " sixth cervical spinous process				1																		1		
" " cervical spine, paralysis of arm				1			1															1		
Brain and Cranial Nerves—9.																								
Epilepsy (Jacksonian)		1	1		1								1	1								2	1	
Trifacial neuralgia				1			1			2												3		
Abscess of brain, fracture of skull, meningitis			1																	1				1
Tumor of brain, hydrocephalus	1																		1			1		
" " pituitary body		1								1													1	
Cranium—3.																								
Fracture of base, depressed fracture of vertex			1						1															1
" " skull, concussion			1																					1
Osteosarcoma of base					1								1											
Fracture of																								

| | | |

	Operated.			Not operated.			Cured.			Improved.			Unimproved.			No treatment.			Died.			Total.		
Neck—*Continued.*	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Carbuncle	1						1															1		
Tubercular glands	1	1	3				1	1	2			1										1	1	3
" " empyema and caries of mastoid, adenoids, enlarged tonsils			1						1															1
Tubercular abscess, chondritis of trachea, acute nephritis thrombosis of abdominal veins			1																		1			1
Angioma of			1						1															1
Keloid (and contraction)			1						1													1		1
Carcinoma of thyroid	1									1					1							2		
Lymphosarcoma of neck	1			1																			2	
Sarcoma of neck		1			1			1															2	
Burns of neck			1									1												1
Subhyoid sinus			1						1															1
Torticollis		1						1																
Goitre, parenchymatous	1						1															1		
" cystic	1						1															1		
Cyst of neck	1						1															1		
Dermoid cyst	1	1					1	1														1	1	
Carcinoma of glands	1						1															1		
Lipoma	1						1															1		
Tubercular sinus			1						1															1
Metastatic carcinoma in mastoid region		1								1													1	
Shoulder—7.																								
Lipoma	1						1															1		
Fracture of clavicle						1			1															1
Comminuted fracture of clavicle, subcutaneous emphysema, fracture of rib				1						1												1		
Sarcoma of scapula			1						1															
Pyemic abscesses of shoulder, back, hip, leg, chest	1		1				1		1															1
Contusion of				1			1															1		1

| | | |

	Operated.			Not operated.			Cured.			Improved.			Unimproved.			Not treatment.			Died.			Total.		
	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Hand—19.																								
Cellulitis of finger and hand	6	4					4	4		2												6	4	
" " hand, osteomyelitis, fracture of carpus	1									1												1		
" " " abscess of ankle, sepsis	1																					1		
Gangrene of fingers	2	1					2			1									1			2	1	
Fractures of phalanges (both thumbs)	1						1															1		
Laceration of	1						1															1		
" " dorsum		1						1															1	
Contraction of dorsum of hand after burns		1						1															1	
Thorax—25.																								
Fracture of ribs (three ribs)				1			1															1		
Tubercular chondritis		1			1	1				2	1												2	1
Enchondrosis of rib			1						1															1
Abscess of lung, empyema, sepsis, lobar pneumonia		1																		1		1		
Subphrenic abscess		1						1														1		
Sacculated empyema, osteomyelitis of rib		1								1												1		
Empyema, chronic nephritis, chronic bronchitis, edema of lung	1																		1			1		
Sacculated empyema, acute pulmonary tuberculosis	1																		1			1		
Empyema, necrosis of ribs		1					1															1		
Empyema	4	2	1				2	2	1	2												4	2	1
Pyopneumothorax, sepsis, edema, pneumonia		1																		1			1	
Tubercular mediastinal abscess, edema of lungs, purulent bronchitis	1																		1			1		
Empyemic sinus	3	1					1			2	1											3	1	
" scar						1									1									1
Back—6.																								
Burns of breast, thigh, and back		1					1															1		
" " back and buttocks					1		1															1		

| | | |

	Operated.			Not operated.			Cured			Improved			Unimproved.			No treatment			Died.			Total.		
	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Stomach and Esophagus—18.																								
Esophagitis, gastritis				1			1															1		
Carcinoma of esophagus, cachexia	1																		1			1		
Stricture of esophagus			1	1		1			1	1		1										1		2
Carcinoma of cardia, cachexia	1	1																	1	1		1	1	
" " stomach		1						1															1	
" " " and omentum	1									1												1		
" " " omentum, and liver	1									1												1		
" " " and gall bladder	1																		1			1		
" " " abdominal viscera, inanition		1																		1			1	
" " pylorus	1																		1			1		
" " " inanition	2																		2			2		
" " " cerebral anemia	1																		1			1		
Ulcer of pylorus, hemorrhagic gastritis, inanition		1																		1			1	
Tumor of duodenum, perforation of intestines, general purulent peritonitis	1																		1			1		
Liver—8.																								
Abscess of	1						1															1		
" " sepsis	1																		1			1		
" multiple and subphrenic		1																		1			1	
" of, interintestinal abscess, sepsis			1																		1			1
" multiple, general edema, empyema			1																		1			1
Gumma of	1									1											1	1		1
Malignant disease of, gall bladder and omental cyst	1									1												1		
Carcinoma of, and metastases	1																		1			1		
Gall Bladder—25.																								
Cholecystitis	1					2			1	1								1				3		
" and cholelithiasis	2	7		1		1			1	7		1	1						1			3	8	

| | | |

	Operated.			Not operated			Cured.			Improved.			Unimproved.			No treatment			Died			Total		
General Abdominal Cavity 6.	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Lymphosarcoma of omentum, abdominal viscera, and mesenteric glands			1																		1			1
Tumor of abdomen					2						2												2	
Retroperitoneal sarcoma	1		1						1						1							1		1
" fibroma (connected with pancreas)		1						1															1	
Non-Perforative Appendicitis.																								
Acute or subacute non perforative appendicitis (not specially classified)	6		2	3			8		2	1							1	1				10	1	2
Acute or subacute non-perforative appendicitis, catarrhal	11	12	1	1	8	3	15	18	2		2	2										15	20	4
Acute or subacute non-perforative appendicitis, catarrhal, acute septicemia		2																		2			2	
Acute non-perforative appendicitis, catarrhal, gangrenous, pyelonephritis, pulmonary infarct, sepsis	1																		1			1		
Acute or subacute non-perforative appendicitis, catarrhal, floating kidney (operation)		3						3															3	
Acute non-perforative appendicitis, catarrhal, empyema of appendix	6						6															6		
Acute non-perforative appendicitis, abscess, diffuse peritonitis	1																		1			1		
" " " diffuse peritonitis		1	2					2												1			1	2
Perforative Appendicitis.																								
Acute perforative appendicitis		1						1															1	
" " " fulminating, diffuse peritonitis			1					1																1
" " " abscess	20	2	7				20	2	7													20	2	7
" " " " diffuse peritonitis	14	3	8			1			1										14	3	8	14	3	9
" " " ulcerative or gangrenous, fecal fistula	1						1															1		
" " " sepsis	1																		1	1		1	1	

Perforative Appendicitis--*Continued.*																															
Acute perforative appendicitis, diffuse peritonitis	9	2	5	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	9	3	3	10	2	5					
" " " " " fecal fistula	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..					
Acute perforative appendicitis, diffuse peritonitis, gangrene of broad ligament and tube	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..					
Chronic Appendicitis.																															
Chronic catarrhal appendicitis	2	5	..	1	1	..	2	5	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	3	6	..					
" obliterating appendicitis	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..					
Recurrent appendicitis	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..					
Secondary "	2	1	..	1	..	..	2	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	..					
Miscellaneous.																															
Necrosis of cecum and colon, sepsis	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..					
Intraperitoneal abscess	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..					
Chronic hemorrhagic appendicitis, cystic ovary	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..					
Herniæ—60.																															
Inguinal—36:																															
" indirect, reducible	18	3	1	..	..	..	18	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18	3	1					
" " strangulated	2	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..					
" " double	5	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..					
" " strangulated sac	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..					
" " with varicocele	1	..	..	1	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..					
" " " dry pleurisy	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..					
" " irreducible	1	..	..	1	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..					
" " double, with prolapsus recti	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..					
" " ischio-rectal abscess, phthisis	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..					
Femoral—11:																															
" reducible, carcinoma uteri and pelvic organs	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..					
" irreducible	..	4	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..					
" strangulated	..	3	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	4	..	..					
" " lobar pneumonia	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..					
" " gangrene	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..					

	Operated.			Not operated.			Cured			Improved.			Unimproved.			No treatment.			Died.			Total.		
Herniæ—*Continued.*	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Ventral—13:																								
" uncomplicated		4	1		1						4	1					1						5	1
" and inguinal	1						1															1		
" " appendectomy	1		1				1		1													1		1
" strangulated	2						1												1			2		
" " chronic, intestinal obstruction, paresis of ileum, shock		1																		1			1	
" complicated, inanition		1																		1			1	
Genito-Urinary Diseases.																								
Kidney—31.																								
Floating kidney		3						3															3	
Hydronephrosis, obstruction of ureter	1						1															1		
" sepsis	1												1									1		
Nephralgia					1					1													1	
Nephritis, acute septic, sepsis		1																		1			1	
Nephroptosis		1					1																1	
Perinephritic abscess	3						3															3		
Pyelonephritis	1	3					1	2		1												1	3	
" double tubercular				1												1						1		
" anuria, sepsis		1																		1			1	
" chronic interstitial nephritis, acute suppression of urine, uremia			1																		1			1
Pyonephrosis		2						2															2	
" tubercular	1									1												1		
Renal calculus	2	1					2	1														2	1	
" " pyonephrosis	1																		1			1		
" colic				4						4												4		
Sarcoma of	2						1						1									2		

Genito-Urinary Diseases—*Continued.*

Bladder—15.

| | | |

Genito-Urinary Diseases—*Continued.*	Operated			Not operated.			Cured			Improved			Unimproved			No treatment.			Died.			Total.		
	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Prostate—9.																								
Abscess of	1						1															1		
Hypertrophied				3									3									3	1	
" and chronic cystitis	1			1						2									1			4	1	
" " " " and edema of lungs				1																		1		
" " retention of urine				1			1									1						1		
Tumor of																								
Seminal Vesicles—1.																								
Inflammation of seminal vesicles and vas deferens				1			1															1		
Testicle and Scrotum—17.																								
Abscess of tunica vaginalis	1						1															1		
Endothelioma of testicle	1						1															1		
Epididymitis, acute				1			1															1		
Gangrenous gumma of scrotum	1						1															1		
Hematoma of tunica vaginalis, necrosis of testis	1						1															1		
Hydrocele of cord (strangulated), nasal diphtheria, retro-pharyngeal abscess, complete hypospadias, marasmus			1																		1			1
Hydrocele of cord and tunica vaginalis	1						1															1		
" " tunica vaginalis	1						1															1		
" " " " and follicular prostatitis				1						1												1		
Sarcoma of testicle	1						1															1		
" " " jaw, and abdomen				1						1												1		
Tuberculosis of testicle	1						1															1		
" " " vas deferens and seminal vesicle, and chronic gastritis	1						1									1			1			1		1
Undescended testicle	2						2						1				1					3		
Varicocele																								

| Rectum and Anus—150. | | |

Lower Extremities.	Operated.			Not operated			Cured.			Improved.			Unimproved.			No treatment			Died.			Total		
	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Pelvis—2.																								
Psoas abscess			1							1														1
Tuberculosis of ilium, abscess, diphtheria, cardiac failure		1																	1			1		
Groin—3.																								
Abscess of			1							1														1
Adenitis of	2						2															2		
" " suppurative, and syphilis	1						1															1		
Buttock—1.																								
Carbuncle of																1						1		
Hip—7.																								
Coxitis				1			1															1		
" tubercular			1									1												1
" " and caries of head of femur, tubercular meningitis			1																		1			1
Dislocation of hip																	1						1	
Sinus of			1							1														1
Synovitis, acute					1			1															1	
Tubercular, necrosis of acetabulum			1							1														1
Thigh—28.																								
Abscess of			1									1												1
Aneurism of profunda femoris	1																		1			1		
Adenitis, femoral	1		1				1			1												1		1
Burns of thigh and leg					1							1											1	
Cellulitis of thigh and knee	2						2															2		
Cyst of	1						1															1		
Cellulitis of thigh and leg	1	1					1	1														1	1	

Lower Extremities—*Continued.*

Thigh—Continued.

| | | |

Lower Extremities—*Continued.*	Operated			Not operated			Cured			Improved			Unimproved			No treatment			Died			Total		
Knee—Continued.	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Arthritis, tubercular, and osteomyelitis of femur		1						1																
" " of knee and rib	1									1												1	1	
" rheumatic	1						1															1		
Arthrodesis of knee and ankle			1						1															1
Bursitis of knee joint	1						1																	
Dislocation of semilunar cartilage				1						1												1		
Deformity of knee and leg, acute nephritis and uremia		1																		1			1	
Fracture of ankylosed knee						1						1												
Genu valgum			1						1															1
" " bowlegs			1						1															1
Hemarthrosis	1						1															1		
Hysterical knee				1									1									1		
Synovitis, chronic	1			2	1		1	1		1			1										1	
Sinus of			1						1															1
Leg—29.																								
Abscess of, streptococcus enteritis, meningitis			1																					1
Extensive burns of legs, hands, and body, marasmus					1															1			1	
Cellulitis of	1							1												1			1	
Dermatitis of leg, lymphangitis																						1		
Fracture, lower end of fibula				1						1												1		
" tibia and fibula				2			1		1														2	
" tibia				1			1															1		
" compound comminuted, of tibia, osteomyelitis				2		2	2		2													2		2
Genu varum	1						1															1		
Lymphangitis of			2						2															2
Lacerated wound, fracture of ulna, septicemia, double pneumonia						1						1												1
Necrotic ulcer of leg, insanity	1			1			1												1			2		

| | | |

Lower Extremities—*Continued.*	Operated.			Not operated.			Cured.			Improved.			Unimproved.			Notreatment.			Died.			Total.		
Foot—Continued.	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C
Burns of		1						1															1	
Cellulitis of																1						1		
" " both feet					1									1									1	
Dermatitis of	1						1															1		
Gangrene, diabetic, of foot and toes, septic parotitis, general sepsis	1						1															1		
Marked deformity of feet and ankles following acute pollomyelitis anterior	1						1															1		
Necrosis of phalanges of foot	1									1												1		
Osteomyelitis of, and cellulitis	1						1															1		
" specific, of os calcis	1									1												1		
" of tarsus					1			1															1	
Pes planus				3						2			1									3		
" " and arthritis of				1						1												1		
Reynaud's disease				1						1												1		
Talipes varus						1			1															1
Tuberculosis of tarsus			1						1															1
Ulcer of				1			1															1		
Wound, lacerated, of																		1						1
Punctured wound of, compound comminuted fracture of metatarsal bones				1						1												1		
Toe—6.																								
Gangrene, diabetic, of	2	1					2				1											2	1	
" and cellulitis of	1									1												1		
" senile dementia					1						1												1	
Hammer toe		1						1															1	
Osteomyelitis of	3						3															3		
Supernumerary toe		1						1															1	

| | | |

CAUSES OF DEATH IN GENERAL SURGICAL SERVICE.

		No. of cases
Appendicitis,	gangrenous, pyelonephritis, multiple infarcts of lung, sepsis	Operated.
"	abscess, diffuse peritonitis, sepsis	"
"	perforative, general purulent peritonitis, sepsis	9
"	gangrenous, general purulent peritonitis, gangrene of broad ligament and right tube, sepsis	"
"	catarrhal acute, septicemia	"
"	acute perforative, diffuse peritonitis	" 2
"	suppurative, abscess, general purulent peritonitis, sepsis	"
"	abscess, general purulent peritonitis, sepsis,	" 2
"	abscess, general purulent peritonitis, sepsis, intestinal obstruction	"
"	sepsis, septic nephritis	"
"	gangrenous, abscess, diffuse peritonitis, intestinal obstruction, sepsis	"
"	gangrenous, abscess, diffuse peritonitis, sepsis	"
"	abscess, general purulent peritonitis	" 2
"	acute perforative, abscess, sepsis, alcoholism	"
"	acute perforative, abscess, meningitis	"
"	acute ulcerative, non-perforative, general peritonitis	"
"	acute perforative, general serous peritonitis, sepsis	"
"	chronic hemorrhagic, cystic ovary, sepsis,	"
"	acute perforative, general purulent peritonitis	Not operated.
"	acute gangrenous and hemorrhagic, diffuse peritonitis, sepsis	Operated.
"	acute perforative, intestinal paralysis, sepsis	"
"	abscess, multiple abscesses of liver, sepsis	"
"	acute perforative, abscess, general peritonitis, sepsis	"
"	acute gangrenous and perforative, abscess, sepsis	"
"	gangrenous, general purulent peritonitis	"
"	" diffuse " "	" 2
"	" abscess, sepsis	2
"	abscess, intestinal obstruction, peritonitis	"
"	general purulent peritonitis	"
"	" and diffuse purulent peritonitis, intestinal obstruction	"
"	acute hydrocephalus, renal calculi, septic peritonitis	"
"	abscess, diffuse purulent peritonitis	"
"	" general purulent peritonitis, sepsis,	Not operated.
Abdominal wall, tumor of, gangrene of omentum, general peritonitis		Operated.
Abscess, ischio-rectal, chronic cystitis, chronic nephritis, uremia		"

	No. of cases.
Abscess, multiple, of liver, empyema, colitis, general edema	Operated.
" peritonsillar, asphyxia	"
" subphrenic, multiple abscesses of liver	"
" of liver, sepsis	"
" thoraco-axillary, acute hemorrhagic colitis	"
" of leg, enteritis, purulent meningitis	"
" tubercular mediastinal, purulent bronchitis, edema	"
" tubercular, of neck, necrosis of tracheal cartilage, acute nephritis, thrombosis of abdominal veins	"
" of liver, peritonitis, interintestinal abscess, sepsis	"
Aneurism of profunda femoris	"
Arthritis, acute purulent, of knee, osteomyelitis of tibia	"
" tubercular, of knee and tibia, sepsis	"
" " " ankle, tubercular meningitis	Not operated.
Burns of hands, legs, and body, marasmus	"
Brain, tumor of, hydrocephalus	Operated.
Carcinoma of colon and abdominal viscera, general asthenia	"
" " liver and omentum, and metastasis	"
" " pylorus	Not operated.
" " " and cerebral anemia	Operated.
" " " inanition	" 2
" " " and gall bladder	"
" " cecum, cachexia	"
" " liver and pylorus	Not operated.
" " cardia, of stomach, cachexia	Operated.
" " esophagus, inanition, cachexia	"
" " stomach and abdominal viscera, inanition	Not operated.
" " rectum, surgical shock	Operated.
" " cecum, abscess, cachexia	"
" " cardia, of stomach and esophagus, cachexia,	"
" " sigmoid, perforation, abscess, intestinal obstruction, general peritonitis	"
Chronic cystitis, hypertrophied prostate, edema of lungs	Not operated.
Cellulitis of hand and arm, diabetic gangrene and coma, chronic nephritis	Operated.
Cholelithiasis, broncho-pneumonia, edema of lungs	Not operated.
Duodenum, tumor of, general purulent peritonitis, intestinal perforation	Operated.
Deformity of knee and leg, acute nephritis, uremia	"
Empyema, chronic bronchitis, chronic nephritis, edema of lungs	"
" of gall bladder and gangrene, sepsis	"
Fracture of skull, concussion of brain, shock	"
" " " abscess of brain, purulent meningitis	"
" " ulna, double pneumonia	Not operated.
Gall bladder, empyema and gangrene of, sepsis	Operated.
Gangrene of toe and foot, diabetic, septic parotitis, sepsis,	Not operated.
Gastritis, hemorrhagic, ulceration of pylorus, inanition	"
Hernia, strangulated ventral, eventration	Operated.
" strangulated epigastric, intestinal obstruction, edema of lungs	"
" strangulated femoral, intestinal obstruction, gangrene of intestine	"

Hernia, strangulated ventral, intestinal obstruction, diffuse peritonitis .. ..Operated
" strangulated ventral, chronic, intestinal obstruction, paresis of ileum, shock ..... "
" umbilical, complicated, inanition..... "
" strangulated femoral, general purulent peritonitis, acute pneumonia..... ..... "
Hydrocele of cord, strangulated, nasal diphtheria, retropharyngeal abscess, complete hypospadias, marasmus.. "
Hip, tuberculosis of, and caries of head of femur, tubercular meningitis..... "
Intestinal obstruction, general purulent peritonitis..... "
Lymphosarcoma of omentum, abdominal viscera, and mesenteric glands, shock..... "
Ludwig's angina, sepsis ..... "
Necrosis of cecum and colon, sepsis..... "
" " ilium, tubercular abscess, diphtheria, heart failure..... "
Nephritis, acute septic, sepsis..... "
Osteomyelitis of femur..... "
" of femur, multiple abscesses of shoulder, neck, liver, edema of lungs, pericarditis, "
" of femur, acute, septicemia..... "
" of tibia and fibula, acute, sepsis, acute lobar pneumonia..... "
" of femur, acute, meningitis, sepsis..... "
Pyopneumothorax, sepsis, edema of lungs..... "
Peritonitis, general, edema of lungs.....Not operated.
Pyelonephritis, chronic, interstitial nephritis, acute suppression of urine, uremia..... "
" anuria, sepsis..... "
" double, chronic cystitis, anuria, sepsis...Not operated.
Pyemia, septic, osteomyelitis of femur, purulent meningitis ....Operated.
Periarthritis, suppurative, sepsis, hypostatic pneumonia.. "
Renal calculus, pyonephrosis..... "
Rectum, perforation of, prolapse of small intestine, intestinal obstruction, diffuse peritonitis ..... "
Retention of urine, hypertrophied prostate, uremia.....Not operated.
Septicemia following extensive lacerated wound of right leg..... "
Streptococcus infection of hand, multiple abscesses of ankle and forearm, sepsis..... "
Stricture of sigmoid flexure, malignant, intestinal obstruction.....Operated.
Typhoid fever, infarcts in spleen, perisplenitis, subphrenic effusion, meningitis..... "
Tetanus..... "
Tuberculosis, general, pyemia, marasmus..... "
" acute pulmonary, sacculated empyema.... "
Urethral and vesical calculi, pyelonephritis, phthisis, uremia..... "
Vesical calculus, chronic cystitis, pyonephrosis, senility..Not operated.
Varicose ulcers of leg, myocarditis, chronic nephritis....Operated.
Volvulus, intestinal obstruction, edema of lungs..... "
Wounds of scalp, multiple fractures, submaxilla, clavicle.Not operated.
" lacerated, of thigh and leg, sepsis..... "

ACCIDENT SERVICE.

Scalp.

Burn of	1
Contusion of	6
Foreign body	1
Sebaceous cyst	2
Hematoma of	2
Wound, incised	28
" lacerated	27
" punctured	1

Forehead.

Wound, incised	13
" lacerated	10
" infected	1

Eyes.

Burn of cornea	1
Contusion of eye	3
Foreign body in cornea	4
" " " eye	19
Wound of eyebrow, contused	4
" " " lacerated	2
Ulcer of cornea	1

Eyelids.

Cellulitis of	1
Contusion of	6
Hematoma of	2
Wound, incised	6

Ear.

Ablation of half of ear, ear sutured on	1
Foreign body in ear	2
Wound of, incised	2
" " lacerated	3

Nose.

Contusion of	5
Dislocation of septum	1
" " nasal bones	1
Epistaxis	6
Fracture of nasal bones	3
Foreign body in	2
Wound, incised	2

Neck.

Abscess	1

Shoulder.

Arthritis	1
Axillary abscess	1
Contusion of	1
Dislocation of	3
Fracture of clavicle	3
" " humerus	1
" " humerus, external condyle	1

Arm and Forearm.

Contusion of elbow	10
Dislocation at elbow (post.)	2
Fracture, Colles'	7
" head of radius	1
" shaft of radius	4
" lower end of radius	1
" ulna	1
Periostitis of humerus	1
Synovitis of elbow	2
Wound, incised of arm	6
" incised, through triceps,	1
" punctured, of forearm	1

Wrist.

Abscess	1
Contusion	6
Foreign body	1
Sprain	3
Synovitis	1
Wound, incised	4
" lacerated	6

Face.

Burns of face and neck	3
" carbolic acid	1
Contusion of face	2
" " lips	1
Wound, incised, of face	1
" " " cheek	1
" " " chin	1
" lacerated, of lip	6

Throat and Mouth.

Abscess, peritonsillar	2
Extraction of tooth	3
Hemorrhage from mouth	1
Infection of hard palate	1
Tonsillitis	1
Wound of tongue	1

Hand and Fingers.

Abscess of hand	6
Amputation of finger	2
Cellulitis of finger	8
Contusion of finger	10
" " hand	8
Dog-bite of hand	2
Infection of thumb	5
Frost-bite	8
Fracture of phalanx	2
" " metacarpal bones	3
Paronychia	2
Foreign body in hand	2
" " " finger	6

Hand and Fingers—Continued.

Wound, incised, of hand	17
" " " finger	22
" lacerated, of finger	27
" " " hand	6
" punctured, of hand	1
" " " finger	3
Sprain of finger	3

Thorax and Back.

Aspiration of chest	1
Contusion of chest	2
Hemoptysis	1

Thigh and Abdomen.

Burn of thigh	1
Contusion of thigh	7
Dog-bite of thigh	6
Wound, punctured, of thigh	4
Hemorrhage from umbilicus	1
Fracture of femur	1

Leg.

Bursitis	1
Contusion of knee	4
" " leg	5

Leg—Continued.

Corn, excision of	1
Fracture, Pott's	1
" of metatarsus	1
Varicose veins, rupture of	1
Sprain of ankle	9
Wound, incised, of leg	2
" infected, of leg	1
" lacerated, of leg	2
" " " foot	3
" lacerated, of toes and foot	10

Miscellaneous.

Burns	11
Foreign body in stomach	1
Furuncles	3
Insect bites	2
Cerebral concussion	1
Secondary hemorrhage	1
Retention of urine	5
Urethritis	1
Inguinal hernia	1
Unclassified	42

XVIII.

REPORT OF THE DEPARTMENT OF GENERAL SURGERY FOR 1900.

Introductory Remarks.

The Surgical Department of Mount Sinai Hospital, united since October, 1896, under one head, was, as mentioned in last year's report, divided into two sections, the separation of the service to go into effect December 1, 1899. An amicable arrangement was made between Dr. Lilienthal and Dr. Gerster as to the division of the beds and the use of the operating rooms, and the new relations were actually established on the date named. In conformity with resolutions of the Board of Directors, the principles hitherto accepted as to the routine and methods of the service were retained, and it was agreed to between the surgeons that necessary modifications or innovations should be adopted by mutual consent. This seemed to be very necessary, in view of the fact that both divisions were to be served by the same men composing the House Staff.

During the past year, to the regret of his colleagues, Dr. Wm. F. Fluhrer, in charge of the Department of Genito-Urinary Diseases, resigned his office. At the unanimous request of the Medical Board, the Board of Directors appointed him Consulting Surgeon, an honor well earned by long and meritorious service. Subsequent to this the genito-urinary department was abolished as such, and the ten beds formerly pertaining thereto were attached to the general surgical service.

In the early summer Dr. George E. Brewer closed his brief but efficient connection with the hospital by resigning. To fill the vacancy the Board of Directors appointed Dr. C. A. Elsberg.

It seems proper to call the attention of the reader to an inter-

esting change in the character of our clinical material. It was gradual, beginning about five years ago, and has now become so complete as to challenge attention. While formerly more than one-half of the patients of the Surgical Department were admitted with and treated for minor complaints or injuries, to-day their greater proportion presents forms of injury or malady of an unequivocally major character. This is apparent in no other field more than in that of abdominal surgery. While there were, in 1894, laparotomies performed to the number of 45, in 1900 their number had risen to 305.

FIRST SURGICAL DIVISION.

By Arpad G. Gerster, M.D.,

ATTENDING SURGEON.

A. A. Berg, M.D., and A. V. Moschcowitz, M.D.,

ADJUNCT SURGEONS.

By referring to the reports of the past two years, the reader will see that in them the clinical material was arranged under two parallel headings; the first, containing the statistical summary of the pathological diagnoses; the second, a digest of the therapeutic utilization of the material as represented by the list of operations performed.

Both for the sake of simplification and to embrace the more purely pathological purport of our work, it was decided to consider in this report both aspects simultaneously.

Finally, it seems necessary to reiterate these remarks, contained in the report for 1898: "Main stress was laid upon publishing, first, all of those cases in which death frustrated the surgeon's efforts, or in which a failure of one or another kind rendered the history instructive. Of the successful cases, extracts of those only were given which presented abnormal features, the rest being disposed of in the commentary of each group in a summary manner. Exception was made, however,

in this respect in the histories of the operations performed on the kidney, which appear in full.

Saline Intravenous Infusions.

It will suffice to state that intravenous saline infusions have become more and more the part of the routine treatment of the various forms of exhaustion the surgeon is called upon to combat. We never have been able to ascribe to this form of stimulation any harmful consequences, and may state positively that frequently the preservation of life was owing to its employment. We have found it especially useful as a preparatory measure in increasing the resisting powers of debilitated patients prior to severe operations. It was not observed in these cases that hemorrhage during the operation was increased thereby. Ordinarily the rule was observed that whenever, during the progress of an operation, the patient's pulse became small and rapid, saline infusion was employed by a separate set of assistants, without interrupting the progress of the main operation.

Aside from its employment as a stimulant, saline infusion was also administered in many cases of deep sepsis, with the view of flushing the emunctories, especially the kidneys, thereby aiding the elimination of toxic material. It cannot be said, however, that our expectations in this direction were ever crowned by an unqualified success.

Head and Neck—total, 43; deaths, 3.

	Total.	Cured.	Improved.	Not improved.	Died.
Abscess of neck	3	2	1	..	..
" " parotid	1	1	..	..	..
" " inferior maxilla	1	1	..	..	..
" " submaxillary region	2	1	1	..	..
" peritonsillar	3	3	..	..	..
Amygdalitis, chronic	1	1	..	..	..
Angioma of lip	1	1	..	..	..
Atheromata of scalp	1	1	..	..	..
Carbuncle of neck	1	..	..	..	1

	Total	Cured	Improved	Not improved.	Died.
Carcinoma of hard palate	1			1	
Endarteritis, cerebral	1	1			
Epilepsy, Jacksonian	2	2			
Epithelioma of nose	1		1		
" " lip	1			1	
Exophthalmic goitre	1				1
Fistula of parotid	1	1			
Fracture of frontal bone, compound	1	1			
" " inferior maxilla	1		1		
Gingivitis, hemorrhagic	1	1			
Hemorrhage of cerebrum	1				1
Lipoma of neck	1	1			
Lupus of ear and nose	1	1			
Lymphadenomata of neck, tuberculous	2	2			
Neuralgia of trigeminal nerve, second branch	1	1			
Osteomyelitis of inferior maxilla	1	1			
" " superior maxilla	2	2			
Parulis	1	1			
Sarcoma of spinal dura mater	1		1		
" " superior maxilla	2	2			
" " scalp	1	1			
Torticollis, hysterical	1	1			
Tuberculosis of tonsil, tongue, and adnexa	1		1		
Tumor of frontal region	1	1			
Wound, lacerated, of scalp	1				

ABSCESS OF HEAD AND NECK—total, 10; cured, 8; improved, 2.

The various abscesses of this region which applied for treatment were treated according to the generally accepted rules, that is, one or more incisions, depending upon the size of the abscess, with subsequent drainage. Beyond this point no material interest has attached itself to these cases; exception might be made to the one case of multiple miliary abscesses of the parotid gland, and a short history of the case is hereby appended.

1900, vol. ii., page 90 *Multiple Miliary Abscesses of the Parotid Gland; Operation; Extirpation of Greatest Part of the Gland; Recovery.*—Aaron M., 29 years of age, was admitted July 7, 1900, with a history of two days' standing, patient having noticed a painful swelling on the left side of the face; the swelling rapidly grew in size and was accompanied by chills and high fever. Examination revealed an intensely painful swelling on the left side of the face, which was closely limited to

the parotid gland; the cervical and submaxillary lymphatic glands of the corresponding side enlarged and tender; a profuse and fetid pyorrhea alveolaris, which possibly led to an infection of the parotid duct and gland; temperature 103.4.°

Operation on admission; eucaine anesthesia. A vertical incision was made over the angle of the jaw, this being the most prominent part of the swelling; the tissues were very much edematous and indurated, but as yet no pus was found. The parotid fascia was, therefore, opened and a transverse incision made in the gland tissue; a grumous, fetid fluid exuded, and on further exploration multiple miliary abscesses were opened in its substance. A transverse incision was added, at right angles to the vertical incision, for better exploration of the gland, and a number of incisions made into the gland, each incision exposing many further abscesses and necrotic tissue. The wound was curetted and a moist dressing applied. On the following two days not only was there no improvement; on the contrary, the edema extended to the entire face. Patient was consequently placed under a full anesthetic and a further number of incisions added; most of the parotid gland, studded with miliary abscesses, extirpated or curetted away; moist dressing.

Improvement very soon followed this radical procedure; a large mass of sloughing tissue came away. Patient was discharged cured on August 1, with a slight facial palsy caused by division of some of the branches of the facial nerve.

CARBUNCLE OF THE NECK—total, 1; death, 1.

1900, vol. i., page 1115. *Diabetic Carbuncle of the Neck; Septicemia; Operation; Death.*—Edward F., 60 years of age, was admitted to the hospital on June 6, 1900, with a carbuncle involving the entire back of the neck; the carbuncle had been incised previous to admission to the hospital, but not sufficiently; condition one of profound sepsis; pulse 150, respiration 28, temperature 101.4°. Operation on admission; under laughing gas, three deep incisions were made in radiating directions through the infiltrated tissues, and all the sloughing tissues curetted away.

The subsequent course was one of general prostration, temperature running up to 104.2°, with correspondingly rapid pulse rate. Patient succumbed to the predominating sepsis four days later.

EXOPHTHALMIC GOITRE—total, 1; death, 1.

Much has been written of late regarding the operative treat-

ment of exophthalmic goitre. The case to be shortly described again shows that there are many factors to be taken into consideration when attacking the thyroid gland with a view to total or partial extirpation. Amongst these, perhaps the most important and, for that matter, also the most dangerous, is an acute thyroidismus which arises with frightful rapidity and tremendous intensity after operations of this nature. The symptoms of this acute thyroidism become manifest in high fever, rapid respiration, very rapid pulse rate, and, shortly before death, in convulsions. From the observation of this case, there is not the slightest doubt that this was the cause of death, as the symptoms enumerated already became manifest in the operating room long before other complications, as pneumonia or sepsis, could have arisen.

1900, vol. i., page 581. *Exophthalmic Goitre; Extirpation of the Thyroid Gland; Acute Thyroidism; Death.*—Louis P., a clerk, 27 years of age, was admitted to the hospital on December 4, 1899, to the medical service, with all the cardinal symptoms of a well-marked exophthalmic goitre. He was treated in the medical service with various therapeutic measures and with varying degrees of success, but without any permanent improvement, and was transferred, on March 14, 1900, to the surgical service for operative interference.

Operation March 16, under chloroform anesthesia. A curved incision, about six inches long, was made on the right side of the neck, beginning at the level of the hyoid bone, and extending along the anterior border of the sterno-mastoid muscle, downward and inward, along the inferior border of the thyroid tumor to the median line. After division of the superficial structures, the sterno-mastoid was retracted outward and the capsule of the thyroid gland exposed. In attempting to enucleate the upper angle of the right half of the gland, the internal jugular vein was accidentally injured, but the resulting slight hemorrhage was readily and immediately controlled by a clamp. After lifting the upper angle of the gland from its bed, the rest of the lobe was easily enucleated, the afferent and efferent vessels being ligated before division. It was not deemed advisable to suture the wound in the internal jugular vein, hence it was properly ligated. At the junction of the right lobe with the isthmus the gland was ligated in sections. At this time the condition of the patient was such that a removal of the left lobe was deemed to be too risky, hence, after proper drainage, the wound was closed.

On account of the nature of the operation, it is certainly of interest to describe the behavior of the pulse during the operation: Prior to beginning the anesthesia the pulse rate was 120. Patient took the anesthetic well, pulse being 144 just before the narcosis was complete, but patient was never very deeply under the influence of the anesthetic. At the time of the first incision the pulse was 140; five minutes later the pulse was 148, of good quality, but irregular. For the next ten minutes the pulse rate steadily decreased, and stood lowest at 128. After this the pulse began to do badly, became more rapid and irregular. In another fifteen minutes the arhythmia was marked, the pulse was feebler and 140 in frequency; at this time (about forty minutes after the first incision) during the manipulation of the thyroid gland the pulse could not be counted; the arhythmia became very marked, the pulse being very rapid and very weak. After cardiac stimulation (15 minims tincture digitalis and $\frac{1}{15}$ grain of strychnine), the pulse could be felt, but not counted; and further stimulation (caffeine and whiskey) was resorted to. After the gland was extirpated (one hour and fifteen minutes) the pulse became less rapid, 140, and of fair force, but still irregular. At the conclusion of the operation (one hour and thirty minutes) the pulse was of fair force, still slightly irregular and 156 in frequency.

Three hours after the operation the temperature was 101°, pulse 172, respiration 38.

On the following morning the general condition was only fair; lips red; speech very low, hardly above a whisper; pulse rapid, about 184; but 205 heart beats could be counted to the minute; temperature 103.8°. Patient was conscious, but very restless. At about 11 A.M. patient became more restless, almost wild; temperature continued to rise, 106°; respiration 42, pulse over 200. At 12 o'clock the temperature was 107.6°, pulse over 200. At 12:30 the patient became cyanotic; tonic and clonic convulsions occurred and patient died.

SARCOMA OF SUPERIOR MAXILLA—total, 2; cured, 2.

Resection or extirpation of the superior maxilla is not an operation of sufficient rarity to merit lengthy discussion. It

will, however, not be entirely devoid of interest to make the very briefest extracts from the histories of the two cases which presented themselves for treatment.

1900, vol. i., page 1060. *Sarcoma of Superior Maxilla and Nasopharynx: Extirpation: Rapid Recurrence: Second Operation: Radical Removal: Recovery.*—Alfred G., 14 years of age, was admitted to the hospital March 12, 1900, complaining principally of nasal obstruction. Examination showed typically the habitus of a patient with nasal obstruction: the hard palate was markedly arched, the left half being more convex, as if crowded from behind forward. By digital exploration it is found that the nasopharynx is the seat of a hard, irregular growth with apparently an anterior and superior attachment. Posterior rhinoscopy shows a pale, irregular growth projecting apparently through the posterior nares.

Operation March 30, 1900. Preliminary tracheotomy to facilitate the anesthesia. Horseshoe-shaped skin incision, with its pedicle opposite the malar bone. After resection of the superior maxilla the antrum was opened, and a portion of the tumor brought to view which seemed to have been crowded into it from the external wall of the nasal fossa; the tumor was so soft and brittle that it had to be removed by morcellement. In order to gain access to the intranasal and pharyngeal portions of the tumor, the inferior turbinated bone and inner wall of the superior maxilla had to be removed. The most posterior portion of the tumor was adherent to the pterygoid process, hence this was also removed. The not inconsiderable hemorrhage was stopped by tamponade. The osteoplastic flap was then replaced and, after drainage, was sutured in place.

The subsequent course was marked by an intensely acute pericarditis, which gave considerable trouble in the after-treatment. Very soon, however, it became apparent that there was a recurrence of the neoplasm; it was consequently decided to again subject the patient to operative interference.

Operation May 18, 1900; chloroform anesthesia. An incision was carried through the cicatrix of the first operation. Some bony union had to be divided with the chisel before being able to raise the osteoplastic flap; the exposure showed a recurrence of the neoplasm on the under surface of the bone; in consequence the bone was extirpated. The antrum and left naris were also filled with soft masses of growth, which had to be removed. A finger introduced into the pharynx detected a mass also on the right side of the nasopharynx; in order to expose this, the posterior part of the nasal septum was divided,

and the tumor forced into the wound from behind and removed. The cavity was packed with gauze, and finally the flap resutured in place.

The subsequent course was uneventful and patient was discharged cured on June 17, 1900. Patient presented himself for examination late in December, 1900, at which time there was not found the slightest trace of recurrence.

The following case of sarcoma of the upper jaw is presented as a contrast to the above. While the tumor was of no small size (walnut), and while it involved, not merely the alveolar process, but also the contiguous portion of the hard palate, on account of the lesser malignity of these growths (myxosarcoma) of the superior maxilla, it was decided to extirpate it only *in loco,* without extirpating the entire superior maxilla. It was remarkable that, in the operation, the antrum was not opened into, although it was confidently expected by the operator that this would be the case. The examination of the specimen removed, however, shows that the mucous membrane of the antrum remained intact, the alveolar process and adjoining portion of the hard palate having been peeled from the mucous membrane.

1900, vol. ii., page 613. *Myxosarcoma of the Superior Maxilla; Operation; Extirpation in loco; Recovery.*—Chas. A., 21 years of age, was admitted to the hospital on October 1, 1900, with following history: Patient notices, since five months, at the site of the left canine tooth (extracted one year ago), a small mass, which gradually grew until it has attained its present size (walnut). The growth involves the alveolar process and encroaches on the hard palate.

Operation on October 5, 1900; chloroform narcosis. The tumor was found to involve such a considerable part of the alveolar process of the superior maxilla that it was necessary to remove all the teeth of that side up to the incisors. An external and internal mucous membrane flap was prepared for subsequent suture, and then the entire alveolar process and part of the roof of the mouth was removed by means of a chisel. On account of the very profuse hemorrhage, it was deemed inadvisable to suture the mucous membrane flaps together, hence the entire wound was tamponed. Healing practically by first intention, without involvement of the antrum. Patient was discharged cured on October 17.

Patient presented himself in February, 1901, for examina-

tion, with an artificial prothesis bearing the missing teeth; not the slightest trace of recurrence.

BRAIN AND CORD—total, 6; cured, 2; improved, 3; died, 1.

Including the one case of neuralgia of the second division of the trigeminal nerve, there were treated at the hospital during the past year six cases of diseases of the central nervous system. It is true that the case of sarcoma of the dura mater of the spinal cord occurred in the dorsal and lumbar portions of the spine, and, as such, does not belong to this place; it is placed here, however, for better revision.

1900, vol. i., page 424. *Jacksonian Epilepsy (?); Exploratory Craniotomy; Discharged; Improved.*—Samuel G., 11 years of age, was admitted to the hospital on March 1, 1900, with following history. Patient was born with an internal hydrocephalus. When two and a half years of age patient fell downstairs and had an attack of convulsions, followed by unconsciousness. Subsequently he had no attacks of this nature until his fifth year, when he had another fall, followed by convulsions and unconsciousness. Since that time patient had repeated convulsions, particularly after a third fall one and a half years ago.

Examination shows a scar over the very prominent left frontal eminence; in other respects the physical examination is negative. Patient was referred to the hospital by a prominent neurologist, who considers the case to be one of internal hydrocephalus, and suggests exploration of the frontal lobe and aspiration of the lateral ventricle. Patient was kept under observation from March 1 to March 8, during which time he has had on each day one or two convulsions, of from ten seconds' to four minutes' duration, followed, in most cases, by a period of unconsciousness.

Operation March 8, 1900. Exploratory craniotomy over left frontal eminence, removing a button of bone about the size of a silver dollar. The brain pulsated normally; aspiration of the lateral ventricle as well as of the subdural space proved negative. The exploration having revealed nothing of importance, the skin flap was laid back and sutured in place.

Primary union resulted, but on the 20th as well as on the 26th of March, twelve and eighteen days, respectively, after the operation, patient had a very slight convulsion. An aluminum plate was made to cover the defect in the skull and patient was discharged on April 6, 1900, with orders to report for observation. Failed to do so.

1899, vol. i., page 653. *Epilepsy with Athetoid Movements; Exploratory Craniotomy; Extirpation of Arm Centre; Discharged; Improved.*—Simon V., 17 years of age, was admitted to the hospital on November 20, 1899, to the medical service, with a history of fourteen years' standing. At that time it was noticed by his parents that he began to have irregular movements of the right hand and foot. He was treated at various institutions, and at one of these was operated upon three times, according to the statement of the patient, for stretching of the median nerve and division of ulnar nerve. During the past five years patient also has occasional epileptic seizures, with loss of consciousness, which are preceded by an aura and occur about twice a month.

The examination, as far as it relates to his nervous condition, shows an athetosis of the right hand, involving also the forearm, but to a less degree; ulnar nerve paralysis for pain, touch, and temperature; trophic disturbances on the dorsum of the right wrist, the skin being much thicker, coarser, and drier. Athetosis also of the toes of the right foot; patellar reflex absent on the right side, diminished on the left side.

Patient was transferred to the surgical service and operated upon on December 22, 1899. A horseshoe-shaped incision was made on the left side over the motor area for the upper extremity, the extent of the incision being 2 x 1½ inches. With the aid of the electric trephine, a correspondingly large osteoplastic flap was raised. No cause for the irritation seen on the under surface of the bone. After ligating several large veins in the dura mater, the latter was incised and the brain exposed. By means of the faradic current the cortical centres for the upper extremity were localized, and a portion of the cortex, about the size of a penny, excised. The dura was closed by a catgut suture, the osteoplastic flap replaced and sutured in place.

On the day following the operation, following symptoms were noted: Patient complains of pain in the head. The athetosis in the lower and upper extremities had ceased; motion was lost completely in the upper extremity, paralysis being complete below the shoulder; paralysis of the toes. Loss of sensation complete below the elbow joint, and to some extent also above the joint; exact limits undetermined, on account of the fatigue of the patient. On the 24th slight twitching of the right hand and a beginning return of sensation were noted. On the 30th slight motion was noted in the muscles of the shoulder and elbow joint. The progress of the wound was perfect, primary union being obtained.

On the 7th of January patient had an epileptic convulsion lasting ten minutes; the movements were most marked on the

left side, but involved also the right side, viz., arm, hand, and fingers. A similar seizure occurred on the 25th of January and on February 3. A sinus made its appearance in the scar, necessitating drainage, and compelling complete removal of the necrotic bone flap on February 22.

At intervals of varying length, epileptic seizures of varying intensity were noted, and patient was discharged on March 11 in following condition: General condition fair; the operative wound practically healed, the skin being adherent to the dura. No epileptic seizure since February 27; some athetoid movements, involving the wrist and fingers; drop-foot on the right side.

As a matter of completeness in this branch of surgery, it may be briefly stated that the case of "*Neuralgia of the Second Division of the Trigeminal Nerve*" (1899, vol. i., page 123) was typical in all respects, and was successfully operated upon by the Lossen-Braun method, combined with an incision in the infraorbital region for better extraction of the terminal filaments.

As already stated in the introductory remarks, the following case of sarcoma of the spinal dura mater really does not belong to this region, but it is inserted here for better review of the subject.

1900, vol. i., page 712. *Sarcoma of the Spinal Dura Mater; Operation; Laminectomy; Extirpation of the Neoplasm; Discharged; Improved.*—Alexander A., 32 years of age, a native of Russia, was admitted on October 9, 1899, to the medical service of the hospital, with following history: Family history negative; patient denies lues. The present history is of five months' duration and began with pains in the back and lower extremities and a girdle sensation. For the past three months also difficulty in walking, the gait being tottering, as if walking on feathers. Patient also states that he has double vision when fixing distant objects. No bladder symptoms; no history of crises.

On admission and subsequent observation the examination by the attending neurologist revealed the following:

Of his general condition, it may be stated that there is a strong suspicion of a tubercular infiltration of both apices.

The spine is rigid; there is a kyphos which involves the two lowest dorsal and the upper two or three lumbar vertebræ; these are tender to pressure, particularly a point to the left of the spinal processes of the first and second lumbar vertebræ.

Abdomen: Superficial abdominal reflex lost on the left side; cremasteric reflex exaggerated on the left side, lost on the right side; hypogastric reflex present on both sides.

Lower extremities: Some atrophy of both lower extremities; absence of patellar reflexes. Areas of anesthesia to touch, pain, and temperature corresponding to the left mesial and postero-inferior part of the buttocks; diminished sensation on outer aspect of left thigh. Fibrillary twitchings in both legs, more marked on the left side. Gait is atactic.

Upper extremities: No change from the normal noted.

Genitals: Anesthesia of the left half.

Pupils react normally; slight tendency to nystagmus, due to a weakness of the external recti.

Tongue is protruded straight; slight tremor.

Bladder symptoms are confined to some difficulty in starting the urinary stream (later on there was also some incontinence).

While in the medical service patient underwent a systematic antiluetic treatment combined with immobilization of the spine. After excluding tuberculosis of the spine and syphilis of the membranes or cord, the diagnosis of a neoplasm of either the cord, membranes, or spinal column was made, and patient was transferred, for operative interference, to the surgical service.

Operation on November 10, 1890; chloroform anesthesia. Longitudinal incision extending from the twelfth dorsal to the fourth lumbar vertebra. As soon as the laminæ of the third lumbar vertebra were exposed, nodular, elastic, pale, translucent, gelatinous masses were seen to occupy the space between the laminæ of the second, third, and fourth lumbar vertebræ. Puncture was negative, proving that the mass was solid. It was noted that the spine of the third lumbar vertebra was movable and detached from the laminæ. As soon as this was removed it became evident that the entire posterior aspect of the third lumbar vertebra was occupied by a new growth of a medullary character which had disrupted the attachment of the spine to the laminæ. The loose portions of the laminæ of the third lumbar vertebra were removed by forceps and scissors, when the semiglobular tumor mass was exposed in its full extent. A small portion was immediately examined by the pathologist, and declared to be not tubercular, but probably neoplastic. To ascertain the exact size of the neoplasm, the spinous process and laminæ of the second lumbar vertebra were also removed, which showed that the tumor extended to the lower margin of this vertebra. The tumor was removed as well as possible, partly by scissors and partly by knife; above the tumor the normal cauda equina and shining dura were seen to descend downward; that portion of the cauda equina

corresponding to the tumor appeared to be very markedly attenuated. The wound was drained with gauze and most of it closed with button sutures.

The subsequent course was uneventful. On the 13th of November, three days after the operation, examination showed that, in general, common sensibility was much improved; but in other respects showed no material change, excepting that the anesthesia involved also the distribution of the fifth lumbar nerve. There were no material complications on the part of the wound, though some retention occurred, which had to be drained by means of a tube. The wound was absolutely closed six weeks after the operation. Patient was admitted to the Montefiore Home for Chronic Invalids, at the time of his discharge from the hospital there being none, or only very slight, improvement noted.

1900, vol. ii., page 53. *Subdural Hemorrhage after Trauma; Symptoms of Compression; Operation, Trephining to Relieve the Pressure; Formation of a Hernia Cerebri; Plastic Operation to Cover Defect; Formation of Numerous Abscesses of the Brain; Septicemia; Death.*—Riza F., 18 years of age, entered the hospital on December 7, 1899. From a person accompanying the patient it was learned that two hours before admission the patient, in alighting from a street car, fell upon the back of the head and sustained a scalp wound, which bled very profusely. Patient vomited several times, and is in a semi-stuporous, apathetic condition.

Examination showed on the occiput, slightly to the right of the median line, a small lacerated wound, about half an inch in depth, in a slanting direction, which does not extend to the periosteum; no hemorrhage or escape of fluid from the ear or nose. Pulse 80, full and bounding; respiration 24, temperature 98.8°.

Patient was under hospital observation for the next five days. The vomiting persisted; the pulse was progressively diminishing in force and number; and a double optic neuritis was also found; the condition of apathy persisted. In other words, symptoms of cerebral compression becoming more manifest, an exploratory craniotomy was decided upon.

Operation December 12, 1899; chloroform narcosis. Through a curved incision taking in the original wound, the occipital bone was exposed, but no fracture of the external table was found. A button of bone was then removed and the dura exposed; the dura was bulging slightly, and under it the brain, not pulsating. No fracture of the internal table. Thereupon the dura was incised, and a grooved director passed beneath it into the cranial cavity for a short distance, in a down-

ward and forward direction; about one drachm of dark blood escaped along the director, but the blood was possibly fresh venous blood; no collection of blood was found between the dura mater and convexity of the brain. Brain pulsation returned. The edges of the bone were smoothed with a rongeur; the dura could not be sutured, on account of the protrusion of the brain into the bony opening, consequently the brain was covered merely with sterile rubber tissue, and, after insertion of proper drains, the skin sutured over it.

During the operation the pulse rose from 47 to 114, and the condition of the patient was such as to require active stimulation.

During the next twelve days the condition of the patient was one of gradual improvement. The wound was clean, but a slight hernia cerebri was manifest. On the following day (December 24) the hernia was found to have increased in size and bulging through the original wound. Ophthalmoscopically the optic neuritis was found to be much better, *i. e.*, entirely well on the right side and only very slight on the left. Under wet dressings the granulations covering the hernia cerebri improved so much that a secondary operation for closure of the hernia was decided upon.

January 12, 1900: Secondary operation for hernia cerebri; chloroform narcosis. An incision was carried around the hernia and the scalp liberated. A vertical incision was then made above and below the hernia, and, from their terminations, lateral incisions at right angles, so as to obtain sufficient covering for the hernia. The opposite margins were then sutured with silk over the hernia, some tension being required for their approximation; drainage; dry dressing.

On the next day (January 13) the temperature ranged between 101.2° and 104°, pulse 100 to 140. The patient acts very peculiarly. At one time she answers questions rationally, at other times she is delirious and very irrational. Patient had what appeared to be a convulsion, with contraction of all the muscles of the extremities, face, and body. Nausea and vomiting. The wound shows moderate tension on the sutures, and some discharge of very fetid pus, hence one of the sutures was removed.

The wound was thoroughly infected and had to be opened wide; naturally the hernia cerebri again became prominent, its surface infected; treated with moist dressings. During the next month the condition remained unchanged and was practically as described on January 13.

Pressure upon the hernia revealed a sinus discharging pus. By this time the hernia has reached the size of a small egg, pro-

truding, mushroom-like, beyond the scalp. As pus was evident in its interior, both for drainage and to attempt better conditions, an operation was again decided upon.

Operation March 5, 1900: chloroform anesthesia. After liberating the cicatrix where it had encroached on the hernia, an incision was carried through its base, amputating the entire hernia; a small abscess cavity was opened (four other discrete abscesses found in the amputated portion); hemorrhage effectually checked by compression.

Following this operation there was some slight general improvement, though it may be said that, as a whole, the condition remained the same. By March 19 the hernia was again apparent, and by May 6 had attained its former size.

Operation May 7: chloroform anesthesia. After cauterizing the surface of the hernia, the brain was aspirated in different directions, but without any result. The protruding mass was again amputated and hemorrhage controlled as before.

Very soon after this operation the hernia again made its appearance, and several small abscesses on its surface were incised and drained. The general condition improved somewhat, so that patient could be up and about. In spite of this, repeated vomiting; severe headaches, frontal and occipital; and convulsions, alternating with delirium, were of almost daily occurrence.

On August 14 the surface of the hernia was again cauterized and aspirated. Pus was found at a depth of two inches. A large cavity was opened into and drained. Other smaller abscesses were also incised and drained.

After this operation the condition was one which closely resembled a chronic sepsis. This condition persisted until the lethal termination on August 30, 1900.

The case about to be described has very little of surgical interest; it is, however, of so much interest from the point of diagnosis as to merit the inclusion of an extract from its history. While the case was finally discharged perfectly cured with the diagnosis *"Luetic cerebral endarteritis,"* this diagnosis is based particularly upon the following two points: (1) recovery without surgical interference, and (2) that the recovery occurred while using mixed treatment.

1900, vol. ii., page 566.—Robert L., 21 years of age, a bookkeeper by occupation, was admitted to the hospital on September 23, 1900. Patient is known to be a subject of hemorrhagic

diathesis. Patient, of more than ordinary intelligence, denies absolutely syphilitic infection, nor are there any traces of hereditary syphilis. During the past four years patient had gonorrhea three times; last attack one and one-half years ago, at the termination of which a stricture of the urethra became manifest, and attempts were made to dilate this stricture. Dilatation could not be carried beyond 25 F., on account of profuse hemorrhages. Endoscopic examination negative. About six weeks ago patient was under treatment at this hospital with an obscure high fever, which got well under treatment with quinine, but no plasmodia were found in the blood.

The present illness is of one day's standing. Patient, in good health on the preceding day, was found in his room acting so irrationally and delirious that a neighboring physician was called in, who administered opiates and chloroform. Is said to have had a convulsion, with a paralysis of the right half of the body. In the evening the patient was stuporous and comatose, and could only be aroused by pressure on an abrasion on the left side of the forehead.

At the time of admission a physical examination revealed the following condition: Patient is apathetic and somnolent. Internal organs negative. With the exception of a slight abrasion on the left side of the forehead, there is no discoverable trauma; no paralysis; pupils normal and react to light; no deviation. Marked tâche cérébrale. Some rigidity of the neck, arms, and legs. Knee jerks present and not increased; no ankle clonus. Some suffusion of the conjunctivæ. Patient is comatose and does not respond to questions. Gives evidence of pain on applying pressure over left frontal region. Ophthalmoscopic examination negative. Pulse 96, respiration 24, temperature 100.4°.

There was a marked improvement from every point during the next two days, so that the sensorium was almost normal. On the third day the patient had a convulsion lasting ten minutes, which was immediately followed by a complete paralysis of the entire left half of the body. The neck was quite rigid, but patient did not complain of much pain. For diagnostic purposes, on the same evening a lumbar puncture was performed and a clean, perfectly sterile fluid withdrawn. After the puncture the patient's mental condition appeared to be better, and he was also able to move the left arm and leg.

September 27: On this day the temperature rose to 102.4°, which was the only rise of temperature noted during the entire illness. On this day he was seen by the attending neurologist, who dictated the following findings: "Patient deeply stuporous and aroused only by loud talking. Patient notices a prick of a

pin. According to report, had a convulsive seizure, followed, in a short time, by left hemiplegia. At present marked paralysis of the left upper and lower extremity, slight paresis of facial nerve." Examination of the fundus and ear by the attending ophthalmologist, negative. Medication consisted of chloral and bromides, and quiniæ bimurias cum urea hypodermatically.

September 28: Condition unchanged. Patient is still hemiplegic and comatose. Takes liquid nourishment when offered. Bladder and rectum evacuations involuntary. Marked rigidity of the neck. Conjunctivæ deeply injected; right pupil larger than left, and reacts; eyes directed upward and to the right. Cremasteric and abdominal reflexes absent on the left side, increased on the right; patellar reflex feeble on the left side; plantar reflex marked on the left side. Reflexes of upper extremities not increased. Hemiplegia as before noted. Tenderness over left frontal region has disappeared.

September 29: All medication stopped, and instead treatment with Hg and KI begun. Condition same as before noted, except for following additional points. It seems that the patient is blind in the left eye. There is a diminished pain-sense over the left half of the body; left knee jerk is absent, diminished on the right side. Left nostril and cornea are insensitive, though not entirely anesthetic. The leucocyte count shows 13,600 white cells.

After this date improvement, though very slow, began to be noted. On October 2, first return to consciousness. As an example of the progressive improvement we find noted on October 13: Talked much during the night; during the daytime the mental condition improves; memory weak and unreliable. Still tries to leave the bed and requires restraining bandages. No trace of facial palsy or hemiplegia; rigidity of both lower extremities. Patellar and pupillary reflexes normal. Motility of head more free; only at extreme motions is pain elicited. Sensation normal. Urination involuntary. Patient often laughs, and talks incoherently.

After this, improvement continued steadily. On October 29 we find the mental condition almost normal; remembers his own delusions and is surprised at his former actions. General condition is good, but still lacks quickness in response, and holds himself in a slipshod, stooping posture. No trace of paralysis. On November 4 patient was discharged cured.

Patient presented himself for examination in February, 1901, and seemed to be in all respects perfectly well.

THORAX—total, 37 cases; 5 deaths.

	Total.	Cured.	Improved.	Not improved.	Died.
Abscess of breast	6	6	..	..	..
Actinomycosis of back	1	..	1	..	..
Carcinoma of breast	5	3	..	..	1
" " " recurrent	1	1	..	..	..
" " esophagus	5	..	1	3	1
Contusion of back	1	1	..	..	..
" " thorax	1	1	..	..	..
Cystoma of breast, papillary	1	1	..	..	..
Empyema	4	2	..	..	2
" sacculated	1	1	..	..	..
" tuberculous	1	..	..	..	1
" with abscess of lung	2	2	..	..	..
Fracture of rib	2	2	..	..	..
" " " complicated with hernia of lung	1	1	..	..	..
Mastitis, chronic	1	..	1	..	..
Myositis of back	1	1	..	..	..
Neurofibroma of intercostal nerve	1	1	..	..	..
Pleuritis, chronic	1	..	1	..	..
Tuberculosis of vertebral column	1	..	1	..	..

ABSCESS OF BREAST—total, 6; cured, 6.

While apparently but little interest attaches itself to the treatment of mammary abscesses, it may not be amiss to mention, in a few words, the procedure as it is usually carried out in the hospital, and which, as a rule, has been followed by good results in a comparatively short time. As a rule, all operations of this nature are performed under full anesthesia. If the abscess is well developed, usually four incisions are made in the breast, in a direction radiating from the nipple, so as to open each quadrant; through-and-through drainage by tubes and gauze. At the earliest opportunity the tubes are either shortened or removed, and further treatment carried on according to indications.

CARCINOMA OF BREAST—total, 6; cured, 5; died, 1.

The typical operation as it is performed at the hospital is the one devised by Halsted, and has given perfect satisfaction. It is interesting to note, in this connection, that the one case

of recurrent carcinoma of the breast admitted was operated by the Billroth method two years previously; on readmission to the hospital the recurrence in the scar was excised and both pectoral muscles extirpated.

The death which is noted in connection with *Carcinoma of Breast* is a case which was not operated upon, the extent of the disease precluding any radical operative interference. The patient was in a very poor condition, and died from exhaustion two days after admission.

CARCINOMA OF THE ESOPHAGUS—total, 5; improved, 1; not improved, 3; died, 1.

Of the five cases of carcinoma of the esophagus admitted during the year, three cases refused operative interference and were consequently discharged unimproved. Of the two cases which consented to a gastrostomy, one was discharged with a well-functionating gastric fistula; the second one was in so desolate a condition that she died three hours after the operation.

1900, vol. ii., page 447. *Carcinoma of the Esophagus; Gastrostomy by Kader's Method; Death from Exhaustion.*—Malke T., 50 years of age, was admitted to the hospital on September 9, 1900, with a history of inability to swallow solids since four months and of barely swallowing liquids for nine weeks. The general condition is one of senility and extreme emaciation. A No. 10 esophageal bougie is completely arrested 10 inches from the teeth. On the following day, under spinal anesthesia, gastrostomy was performed by Kader's method, and feeding begun at once. The patient, however, was too far gone, and, in spite of active cardiac stimulation, died three hours later.

EMPYEMA—total, 8; cured, 5; died, 3.

A majority of the cases of empyema which apply at the hospital for treatment occur in young children, and, as such, are referred at once to the children's department. The eight cases which have been treated in the First Surgical Division have occurred in adults, and were transferred for operation from the medical side of the house.

The customary treatment consists of resection of a rib, with

liberal drainage by means of large-sized tubes. Exception to this rule is made only under extraordinary circumstances, when the condition of the patient is such as to preclude even this operation of comparatively short duration; in these cases a liberal intercostal incision is made, and the rib is resected, when the patient has recovered sufficiently. The after-treatment is carried on by the dry method, irrigation being used only on special indication, *e. g.*, decomposition of the secretion.

The following two cases were complicated by an abscess of the lung, and on this account a brief extract is made from their histories:

1899, vol. i., page 324. *Empyema; Abscess of Lung; Operation; Recovery.*—Barnett G. was admitted to the hospital on December 29, 1899, with a history of a cough, etc., extending over two years. Physical examination revealed an empyema of the right half of the thorax extending from the fourth rib downward. The examination of the sputum showed necrotic lung tissue, but no tubercle bacilli; in the sputum, as well as in the aspirated pus, streptococci.

Operation on January 4, 1900. Resection of three inches of the seventh and eighth ribs in the posterior axillary line; the inner wall of the cavity was seen to be made up of necrotic lung tissue; drainage by means of three large tubes.

Subsequent course was uneventful, patient being discharged cured on February 11, 1900.

1900, vol. i., page 277. *Empyema; Abscess of Lung; Operation; Accidental Opening of the Subdiaphragmatic Space, Immediate Suture; Recovery.*—Louis A., 18 years old, was transferred from the medical service on January 29, 1900, with the diagnosis of empyema. At the operation, on the same day, at first the ninth rib was resected and accidentally the peritoneum opened, without finding pus; the peritoneum and skin incision were, therefore, immediately closed. The seventh rib was next resected in the scapular line, and a cavity, about the size of a hen's egg, opened, which was sacculated by adherent pleura and the inner wall of which was formed by necrotic lung tissue. On breaking down the adhesions posteriorly, another large cavity, extending backward to the vertebral column and containing pus, was reached. The larger cavity was drained by means of two large drainage tubes, and the smaller cavity by one.

The subsequent course was uneventful, no disturbance arising from the wound in the peritoneum. Patient was discharged cured February 25.

There occurred three deaths from empyema during the past year. In one case the cause of death is directly attributable to the general bad condition of the patient; in the second case the patient died under the anesthetic during the secondary operation; and in the third case the cause of death was advanced general tuberculosis.

1900, vol. i., page 414. *Empyema; Septicemia; Operation; Death.*—Morris C., 28 years of age, was admitted on March 31, 1900, to the medical service, with an empyema of the right side. Temperature 104°, pulse 136, respiration 60. General condition so wretched that most active stimulation was necessary to tide over the first few hours of his hospital stay. Eight hours after admission three inches of the eighth rib were resected under cocaine anesthesia, considerable pus evacuated, and the cavity drained.

The subsequent course was marked by repeated attacks of pulmonary edema, necessitating repeated cuppings and very energetic stimulation. To one of these attacks the patient finally succumbed on April 19.

1900, vol. ii., page 200. *Empyema; Operation; Collapse under the Anesthetic; Death.*—Jettie S. was transferred from the medical side of the house on June 23, 1900, to the surgical service, with the diagnosis of empyema on the left side. At the immediate operation under local anesthesia, the condition of the patient was so grave that resection was not even attempted, merely an intercostal incision made; considerable serous fluid escaped, but no pus. Another search for pus was then made with the aspirating needle, but none obtained. On account of the poor condition of the patient, further proceedings were deferred to a later time.

There was no change in the condition of the patient. Temperature very high, with occasional remissions; pulse weak in spite of energetic stimulation. On July 15 pus was found on the left side, and operative interference was decided upon. Chloroform anesthesia. Just as the first incision was made in the eighth intercostal space and the pus slowly evacuated, the patient suddenly collapsed, and all attempts with active stimulation and artificial respiration proved fruitless at reviving the patient.

1900, vol. ii., page 810. *Empyema; Acute Phthisis; Tuberculous Foci in Other Parts of the Body; Operation; Death.*—Ruben S., 42 years of age, was admitted to the hospital on August 30, primarily with a phlegmon of the finger, which was amputated; during his stay at the hospital the patient developed an abscess of the prostate, which was evacuated and

successfully drained through a perineal incision. Patient was discharged cured on September 29. Three weeks later he again sought admission, and was admitted to the medical side of the house with an active pulmonary tubercular process, and re-transferred to the surgical service with an extensive empyema on October 11, 1900. The condition of the patient was so poor that all that could be done was to make, under local anesthesia, an incision in the eighth intercostal space, in order to evacuate the pus. On a subsequent occasion, in order to facilitate drainage, the eighth rib was resected. While the empyema did as well as could be expected, the patient finally succumbed to the pulmonary tuberculosis.

FRACTURE OF RIBS—total, 3; cured, 3.

The following history is of interest on account of the complications:

1900, vol. i., page 706. *Depressed Fracture of Third Rib; Extensive Subcutaneous Emphysema; Recovery.*—Willie E., 23 years of age, was admitted to the hospital on May 16, 1900, with following history. Patient is a painter by occupation and fell from a scaffolding a distance of fifteen feet, sustaining an injury of the upper part of the right half of the thorax. He has had no difficulty in breathing, but expectorated a considerable amount of clotted blood. Examination revealed a depressed fracture of the third rib, about 1½ inches from the right border of the sternum. Considerable subcutaneous emphysema over the thorax, extending downward upon the abdomen and involving also the right arm, but no symptoms of a hemo- or pneumothorax. A distinct hiatus can be felt in the course of the third rib; and, on coughing, a distinct hernial protrusion is to be felt and seen at the site of the hiatus. Under application of an icebag and immobilization, the patient made an excellent recovery, and was discharged cured on May 25; referred for ambulatory treatment.

The physiology of this injury and its complication is not by any means easy of explanation. The only way in which it can be accounted for is that, during the trauma, the rib was fractured, and, being forced inward, a spicule of the fractured end of the rib penetrated the lung; this is evidenced by the concurrent hemoptysis. But this will not explain the subcutaneous emphysema, in absence of a pneumothorax. To explain this occurrence we must assume that the fractured rib, after penetrating the lung, had sufficient resiliency to spring back into its original position, carrying with itself the punctured portion of

the lung, and holding it captured outside of the pleural cavity. Such an occurrence would alone account for the symptoms of the case.

DISEASES OF ABDOMINAL VISCERA—194 patients; 170 operated upon; 179 operations; 49 deaths (2 deaths in patients not operated upon).

	No. of cases	No. of operations.	Deaths.
Diseases of stomach	7	4	1
" " small and large intestines	13	8	6
" " vermiform appendix	122	117	28
" " liver	10	8	4
" " gall bladder and bile ducts	16	15	8
" " female genital organs	16	15	2
Miscellaneous abdominal diseases	10	12	0
	194[1]	179[2]	49[3]

[1] 24 cases not operated.
[2] 170 celiotomies; 9 operations on external female genital organs.
[3] 2 deaths of patients not operated upon.

GASTRO-INTESTINAL TRACT. STOMACH—4 operations, 1 death.

Diseases treated.	Total cases.
Perigastric adhesions following laparotomy	1
Benign pyloric stenosis, gastrectasia	1
Carcinoma of stomach, pyloric stenosis	4
Ulcer of stomach (transferred to the medical service)	1

Operations performed.	Total No. of cases.	Deaths.
Celiotomy—division of perigastric adhesions	1	0
" posterior gastro enterostomy (Murphy button) for benign stenosis	1	0
" posterior gastro-enterostomy for carcinoma (Murphy button)	2	1

Two of the patients with malignant stenosis of the pylorus declined palliative gastro-enterostomy. One of these patients has subsequently returned to the hospital, pleading for relief; a gastro-enterostomy being no longer possible, on account of the extensive invasion of the stomach walls by the carcinoma, a jejunostomy (Witzel) was performed.

1900, vol. i., page 241. *Perigastric Adhesions following a Laparotomy Performed Six Years Ago; Interference with Motor Function of the Stomach; Celiotomy; Division of Adhesions; Recovery*—Betty K., 30 years old, admitted February 9, 1900. Had been laparotomized six years before by Dr. Mundé for pyosalpinx; marked gastric symptoms from which she had been suffering were somewhat relieved after this operation. Epigastric pain, which had always persisted, had again become

especially severe four years after the operation. Vomits occasionally a greenish-yellow fluid. Never had been jaundiced. Examination showed in the region of the stomach a symmetrical enlargement, that filled the entire epigastrium and extended to the umbilicus. There was marked pain on pressure over the epigastrium. The stomach reached to the umbilicus. The patient was very obese, and the symmetrical enlargement in the epigastrium was considered to be due, most probably, to adipose tissue. Exploratory celiotomy performed February 12, 1900. Large lipoma found in the abdominal wall of the epigastric region. Stomach was found to be slightly congested. Gall bladder, bile ducts, pancreas, and kidneys apparently healthy. A band of omentum passed across the anterior surface of the stomach; likewise a number of dense adhesions were found between the anterior abdominal wall and the small intestines, at the site of the old scar. These adhesions and the omental band running across the stomach were divided. Abdomen closed without drainage. Patient reacted well from the operation. The vomiting ceased, and the pain, for the greater part, was relieved. Patient discharged cured March 4, 1900.

1900, vol. ii., page 195. *Benign Pyloric Stenosis; Gastrectasia; Posterior Gastro-enterostomy with Murphy Button; Recovery.*—Margaret L., 29 years old, admitted June 7, 1900. For four years patient had suffered with gastric symptoms: pain and pressure in epigastrium, nausea, no vomiting, distress after eating, constipation. The woman complained of having become much weaker, but had not lost flesh. On examination the region of the pylorus was occupied by a firm mass, very tender to palpation. The capacity of the stomach was three pints; the lower border when the stomach was distended reached 2¼ inches below the umbilicus. Chemical examination of stomach contents, after a test meal of two pieces of zwieback and a cup of black tea, showed a total acidity of 78, free HCl 44, no lactic acid, butyric acid present. The patient was put upon a dry diet, rectal injections of salt solution and gastric faradism applied, but no improvement was noticed. A second examination of the stomach on July 3 showed its lower border, on distension, to reach 4 inches below the umbilicus. The stomach chemical analysis revealed free HCl .16, no lactic acid. July 5: Median celiotomy. Stomach showed around the pyloric end considerable injection of the peritoneal coat. The pylorus was very firm and much thickened, and on the posterior surface of the antrum pylori was a thickening, probably the site of a healed ulcer. The fundus was much dilated and separated from the pyloric portion by a transverse constriction. A posterior gastro-enterostomy with Murphy's button was established and the abdominal wound closed by sutures. Post-operative reaction

good. Fluid nourishment given after twenty-four hours and retained. Bowels moved on second day by a high enema. Wound healed primarily. Convalescence rapid and excellent. Patient relieved of all gastric symptoms and was discharged August 1, 1900, cured. Button was not passed until about two months after leaving hospital.

1900, vol. ii., page 37. *Carcinoma of Stomach, Pyloric Stenosis, Posterior Gastro-enterostomy; Acute Suppression of Urine due to Chronic Nephritis; Death.*—Minnie G., 66 years of age, admitted July 9, 1900. The patient had been complaining of stomach symptoms for one year; occasional vomiting, frequent acid eructations. The vomiting had become more frequent and copious during the last two months. Vomited blood once. Lost considerable flesh and strength in the four or five weeks before her admission. Urine contained albumin. Examination of stomach contents showed stagnation, no free HCl, lactic acid.

July 10: Celiotomy. Stomach much dilated at the cardiac end, and its walls somewhat thickened. The pylorus was occupied by a hard tumor which completely surrounded it. A metastatic nodule was felt in the wall of the first portion of the duodenum. The jejunum was contracted and empty. A posterior gastro-enterostomy with Murphy's button established; closure of the abdominal wound. Patient had a very bad anesthesia; did not react well. Only four ounces of urine were passed in the succeeding twenty-eight hours; patient became stuporous and died thirty hours after operation.

DISEASES OF THE INTESTINES—13 patients, 8 operations, 6 deaths.

	Cases.	Cured.	Unimproved.	Died.
Ulcerative colitis [1]	3	3	..	...
Ruptured typhoid ulcer in ileum; diffuse purulent peritonitis	1	1	..	...
Volvulus of sigmoid flexure; acute obstruction; intestinal paralysis; dry peritonitis	1	....		1
Internal hernia into fossa of Treitz; acute obstruction; intestinal paralysis; peritonitis	1	....		1
Strangulation by Meckel's diverticulum; acute obstruction; diffuse peritonitis [1]	1	....		1 [3]
Perisigmoid peritoneal adhesions causing chronic stenosis	1	1	..	...
Lymphosarcoma of small intestines and mesenteric glands [2]	3	..	2	1
Carcinoma of colon; chronic obstruction	1	...		1
" " sigmoid flexure; chronic obstruction	1	....		1

[1] Not operated. [2] One case not operated. [3] Admitted moribund.

OPERATIONS—8 operations, 5 deaths.

	Cases.	Cured	Unimproved	Died.
Enterorrhaphy for ruptured typhoidal ulcer	1	1		
Celiotomy for relief of volvulus of sigmoid flexure	1			1
" " " " internal hernia into fossa of Treitz	1			1
" " division of perisigmoid adhesions	1	1		
Colostomy for carcinoma of colon	1			1
Resection of sigmoid flexure and one half of descending colon for carcinoma	1			1
Exploratory celiotomy for lymphosarcoma of intestines and glands	2			1

1900, vol. ii., page 853. *Ruptured Typhoid Ulcer, in Second Week of Ambulatory Typhoid Fever, in a Boy 7 Years Old; Diffuse Purulent Peritonitis; Suture of Perforation Twenty-two Hours after its Occurrence; Recovery.*—Joseph H., 7 years old, admitted in the evening of August 18, 1900. For eight days past he had been suffering with headaches and lassitude. During this time he was up and about, and continued playing as usual. At about 2 o'clock in the morning of the day of his admission, he had violent abdominal cramps, chiefly located in the right iliac region. There was no collapse. The bowels moved once after the onset of these cramps, the stool being normal. During the day the child had chills and fever, and vomited once. On admission physical examination revealed a well-nourished boy with a temperature of 103°, pulse 136, respiration 26. The heart and lungs were normal. The abdomen was extremely distended and everywhere very tender to palpation, but especially so in the right iliac fossa. The abdominal walls were rigid. Some dulness to percussion in the flanks. Per rectum, slight bulging of Douglas' cul-de-sac, but no inflammatory tumor could be palpated. The tongue was dry and coated; there was no eruption on the body. The liver and spleen appeared to be of normal size, but the extreme abdominal distension masked the flatness usually obtained over these viscera. The child had been sent in for acute perforative appendicitis and peritonitis, and on admission the peritonitis symptoms so clouded all the others that no definite diagnosis could be made. In view, however, of the history, which was typically that of an acute perforative appendicitis, and in the absence of any signs pointing to any other disease, *e. g.*,

typhoid fever, no other diagnosis than that of perforative appendicitis could be considered.

Immediate laparotomy was proceeded with (about twenty-two hours after the onset of the acute symptoms) under chloroform anesthesia. The abdomen was opened in the right iliac region by the Kammerer incision. There was at once a discharge of sero-purulent material from the free peritoneal cavity. The peritoneum was everywhere intensely injected, and no limiting adhesions were present. The peritoneal lymphatic glands were enormously swollen, some of them being the size of walnuts. The appendix was at once sought for and readily found in the right iliac fossa. To all appearances it was normal, except that its serous coat shared in the general injection. Its mesentery was secured, its base ligated, and the organ removed. It was quite evident that the appendix itself had not given rise to the intense peritonitis and lymphatic enlargement that was present, so further search was instituted for the cause. All of the small intestines were much injected and in part dilated. As they were rapidly passed through the fingers, an enlarged and especially prominent Peyer's patch, low down in the ileum, came into view, and in its centre was a perforation about the size of a millet seed. From this perforation a thin, yellowish-white fluid was discharging into the peritoneal cavity. The perforation was at once closed with a double row of Lembert sutures of silk, so that the entire Peyer's patch was covered by the neighboring intestinal wall. Further search revealed no other perforations. The abdominal cavity was sponged dry with sea sponges, a narrow wick of gauze passed down to the appendicular stump to protect its raw surface, and the rest of the abdominal wound closed with through-and-through sutures. The child was in collapse during the progress of the operation, which lasted one hour and ten minutes, but responded well to stimulation.

Subsequent History.—The child reacted well from the operation; during the nine succeeding days the temperature ranged from 100° to 104°, the pulse rate being about 120. The bowels moved on the second day and thereafter daily. The stools were not typhoidal in character. There was considerable abdominal distension. No roseola; no Ehrlich reaction in the urine, which was otherwise normal. The gauze wick was renewed on the second day. All the stitch holes were found infected on the sixth day. After the ninth day the temperature became and remained almost normal, likewise the pulse rate. The *Widal reaction* remained *negative* up to the nineteenth day of his stay in the hospital, when the assistant pathologist, Dr. Libman, *reported it to be positive. Again on the twentieth*

day the *Widal test* was *positive* with a dilution of 1 to 40. The stitch-hole infection retarded the closure of the abdominal wound, otherwise convalescence was uninterrupted, and the child was *discharged cured* October 10, 1900.

1900, vol. ii., page 706. *Volvulus of the Sigmoid Flexure; Acute Intestinal Obstruction; Intestinal Paralysis; Dry Peritonitis; Death.*—Max S., 60 years old, was admitted November 19, 1900. For two days before, the patient had been constipated. The present illness, of sixty hours' standing, commenced with sudden abdominal cramps in the right iliac region, accompanied by vomiting, the vomitus being at first greenish and later dark red (bloody?). All efforts to move the bowels by cathartics or enemata were ineffectual. No chills or fever.

On admission the abdomen was extremely distended and tympanitic and tender. Outlines of intestines were visible through the parietes. The flanks were dull to percussion, changing to tympany upon change of position. Suprapubic region was dull to percussion. Rectum collapsed, but marked bulging of the anterior wall. The tongue was dry and coated. The heart's action was rapid and very feeble, pulse rate 104, temperature 99.4°. Immediate laparotomy under eucaine (4 per cent.) locally injected. Median incision. No free fluid in the peritoneal cavity, the shifting dulness in the flanks being due to fluid in the distended colon. The entire intestinal tract down to the sigmoid flexure was very much distended and no peristalsis was visible. The flexure itself was twisted 180° on its mesentery. This twist was reduced. The intestines were then punctured in several places to relieve the distension, the puncture openings being closed by two Lembert sutures. The abdominal wound was closed in part, and, to save time, a gauze diaphragm lined with rubber tissue was placed just within the abdominal walls to prevent prolapse of intestines. The intestinal obstruction was relieved by the operation, the bowels moving by high enema, but the pulse grew gradually weaker and weaker, the patient succumbing about twelve hours after operation. No postmortem permitted.

1900, vol. i., page 95. *Internal Hernia into the Fossa of Treitz; Acute Intestinal Obstruction; Intestinal Paralysis; Peritonitis; Death.*—Louis G., 35 years old, a tailor, was admitted January 20, 1900. The illness began three days before with diffuse abdominal pain, which later became localized in the right iliac fossa. He vomited almost constantly and his bowels could not be made to move by either cathartics or enemata. On admission the abdomen was markedly dis-

tended; there was a shifting dulness in the flanks; marked tenderness over the entire abdomen, but especially in the right iliac fossa, where an indefinite mass could be felt. The pulse was very feeble, 100 to the minute, temperature 100.4°. The lungs were normal. High oxgall enema was absolutely ineffectual. Immediate celiotomy. Abdomen opened to the outside of the right rectus muscle. Some turbid serum was evacuated from the free peritoneal cavity. Almost the entire small intestines were crowded over into the right side of the abdomen; they were much distended and intensely injected. Near the lower end of the ileum the intestine was crossed by a tense curved band, concave downwards, which tightly constricted it. Distally to this point the small intestine was collapsed. The band was found to be the free edge of the duodeno-jejunal fold of peritoneum, and the small intestine, slipping beneath it, had filled and distended the fossa of Treitz. In this fossa it became imprisoned and was strangulated at one part by the free edge of the fold. The intestine was withdrawn from the fossa, the fold being first divided between two clamps, which were left *in situ*. No gangrene of the gut was apparent. To relieve the enormously distended intestine it was punctured in several places, thus affording exit to considerable gas and fluid feces. The puncture openings, with one exception, were closed by Lembert sutures. Through the remaining opening, in the lower part of the ileum, a large-size tube was passed and left in the bowel for drainage. Toilet of the peritoneal cavity was made, the intestines replaced, and the abdominal wound sutured. The patient collapsed during the operation, requiring vigorous hypodermatic and intravenous stimulation. He responded very poorly, however, and succumbed twelve hours later.

Postmortem Examination through the wound.—A large amount of somewhat turbid serum was free in the peritoneal cavity. The wall of the small intestine and its contents were, in places, markedly hemorrhagic; there were some hemorrhages into the mesentery. In the usual situation of the fossa of Treitz was a large hernial sac, in which was the larger part of the small intestines. Distended by water, this hernial sac measured 25 cm. in length and 19 cm. in width. The orifice of the sac had been enlarged by incision to relieve the strangulation. The cecal, subcecal, post-vesical, and sigmoid peritoneal pouches markedly developed. In the peritoneum, just posterior to the bladder, was a diverticulum ½ cm. in diameter and ⅓ cm. deep. Below the latter were two smaller diverticula.

1900, vol. ii., page 699. *Carcinoma of Colon; Chronic Intestinal Obstruction; Colostomy; Death.*—Babette H., 80 years old, had been operated upon for an acute otitis media in September, 1900. The patient has suffered from chronic constipation for several years, but cathartics or enemata always succeeded in bringing on a satisfactory evacuation. Three days before admission to the surgical service she commenced to have abdominal pain with some distension. Salines and high enemata did not bring on a satisfactory movement of the bowels, and since then the patient has had no evacuations at all. At times a small amount of gas was expelled. The abdominal distension grew gradually more marked and the general condition of the patient became progressively worse; the heart's action was rapid and feeble and temperature was 101°+. During the last day she vomited several times. On admission there was a marked hypostatic congestion of the lungs, rapid and feeble pulse, and much-distended abdomen. Corresponding to the transverse and hepatic flexures of the colon was an area of dulness.

Celiotomy under NO_2 anesthesia, in left inguinal region, October 26, 1900. Large amount of clear serum escaped from the peritoneal cavity. The sigmoid flexure was collapsed. The abdominal incision was therefore closed, and a second incision made in the right iliac region. The caput coli was distended. Exploration was impossible, on account of the wretched general condition of the patient. The caput coli was sutured into the wound and a dry dressing applied. Six hours later the colon was incised and a large amount of fluid feces evacuated. The patient became comatose immediately after the operation, and died about eighteen hours later with a temperature of 105.8°.

Postmortem examination was not permitted.

1900, vol. ii., page 138. *Carcinoma of Sigmoid Flexure; Chronic Stenosis of the Intestine; Resection of Sigmoid Flexure and Half of Descending Colon; Murphy Button Anastomosis; Death from Shock Sixteen Hours after Operation.*—Morris S., 40 years old, a tailor, was admitted July 27, 1900, with symptoms of acute intestinal obstruction. The patient had suffered from constipation and intestinal cramps, gradually increasing in severity, for four months. Never had passed any blood with his stools. On admission there was marked abdominal distension and visible peristalsis, and per rectum could be palpated, just at the end of the sigmoid flexure, a hard, constricting, ulcerating tumor. The patient was markedly emaciated, the inguinal glands were enlarged. High enemata and calomel and salines produced copious evacuations of the bowels. After thorough preparation and cleansing of

the bowel by cathartics and irrigations for a period of four days, operation was performed. A median incision was made from umbilicus to the symphysis pubis. A hard, dense tumor was found to occupy about 3 inches of the sigmoid flexure, reaching down to the upper end of the rectum. The mesenteric nodes were enlarged, but not hard. Resection of the bowel, about six inches above the tumor and one inch below it, was made, the upper limit of the resected area passing through the middle of the descending colon, the lower limit through the upper part of the rectum. The sacral glands were also removed. Considerable difficulty was encountered in making the resection, on account of the absence of any mesentery to the descending colon and sigmoid flexure, the entire procedure necessarily being performed intraperitoneally. Immediate anastomosis by Murphy button was easily accomplished. Gauze drainage was passed down to the site of the button and the abdominal incision closed. The operation lasted two and one-half hours, and at its close the patient was quite weak, although no blood had been lost. Active stimulation, subcutaneously and intravenously, was employed, but the patient responded very little to it. The temperature rose in the early morning to 104°; the pulse grew gradually weaker, and exitus occurred sixteen hours after operation. There were no indications of peritonitis. Postmortem showed the anastomosis good, the peritoneum perfectly smooth and glistening.

The specimen removed was the sigmoid flexure and lower portion of the descending colon. The flexure was occupied by a hard tumor which constricted the lumen of the bowel to the calibre of a lead pencil. *Diagnosis.*—Adenocarcinoma.

1900, vol. ii., page 486; 1900, vol. ii., page 864; 1900, vol. ii., page 620. *Three Cases of Lymphosarcoma of the Mesentery and Intestines.*—In the first case the malignant disease was so extensive as to forbid even an exploratory operation. In the second an exploratory laparotomy was performed. The patient's symptoms very strongly simulated acute appendicular abscess. Laparotomy revealed extensive infiltration of the mesentery, omentum, and small intestines. The abdominal incision was closed, after removing a specimen of the omentum for pathological examination. The pathologist's report on the specimen was lymphosarcoma of the omentum. Recovery from the operation took place, but subsequent attempts to find the patient have been fruitless. The third case is given *in extenso.*

Dora B., 20 years old, a tailoress, was admitted October 17, 1900. The patient, two years before the present illness, had been curetted for an incomplete abortion. Otherwise she had

been in perfect health up to eight months ago, when she commenced to have attacks of severe epigastric pain radiating to either hypochondriac region. The pain was especially marked after eating soft or solid food, so that she was compelled to subsist entirely on fluid diet. During the last four months she had vomited whenever she ate anything soft or solid. The vomitus consisted only of ingested food. She had lost considerable weight. Six weeks ago she noticed a hard swelling in the left hypochondriac region, which was painful on manipulation. Her bowels were always costive. An irritating cough developed about one week before. There were no night sweats. No urinary symptoms.

On admission she was emaciated, pale, and anemic. The inguinal glands were enlarged. There were numerous crepitant râles in both chests behind. The heart was normal, likewise the liver. In the left hypochondriac region was a large, tender mass reaching from the free border of the ribs to the iliac crest. It lay in front of the kidney, did not have any respiratory movement, did not reach backward into the loin, and the colon descendens lay to its outer side. Urine normal.

October 19, an exploratory operation was made. A lumbar incision over the left kidney exposed the latter organ and showed that the tumor held no relation to it. The lumbar incision was prolonged forward and the peritoneal cavity opened, exposing the tumor. This was about the size of an orange, surrounded by numerous adhesions, was smooth on its surface, but on aspiration yielded a grumous, cheesy material which proved to be composed of granular detritus. No pus. The tumor was situated in the mesentery of the small intestines and was densely adherent to the transverse, descending, and sigmoid flexure of the colon and to the omentum. The glands of the mesentery were markedly enlarged. The tumor was incised and a large amount of cheesy, lumpy material removed. The cavity of the tumor was drained by tube and gauze and the external wound partly closed. The patient reacted very poorly from the operation. The pulse became rapid and feeble. The following day the patient commenced to vomit, and this continued. The bowels were moved on the second day. The temperatures remained normal; there was no marked abdominal distension. The general condition became rapidly worse, and exitus occurred three days after operation.

Postmortem, made through the wound, showed no general peritonitis. The stomach was normal. In the mucosa of the small intestines, commencing 66 cm. from the beginning of the jejunum, were four ulcerated areas with elevated edges, one almost completely encircling the intestines. At two of these

areas there was some stenosis of the lumen, with commencing diverticula formation above the stenosis; 180 cm. from duodenum was a growth projecting into the intestine: over it the mucosa was absent. The growth was soft and of a yellowish color on the surface, and polypoid. It measured 4 cm. in diameter, and was continuous with a large growth in the mesentery. The latter measured 20 x 8 cm., and consisted of several enormously enlarged lymph nodes.

The nodes are soft, on section, are white in color, the cut medullary surface projecting beyond the level of the cortex. In many of them is a yellowish centre, irregular in outline, of firm or cheesy consistency, and containing streptococci. In the remainder of the mesentery there are numerous large nodes, varying from ½ to 6 cm. in diameter; some showing the same structure as described above, others being only of an inflammatory character. The remainder of the small intestine shows acute catarrhal inflammation. The large intestine is dilated and is injected in places.

Retroperitoneal Nodes.—Negative.

Liver.—Congested; fatty.

Adrenals.—Negative.

Kidneys.—Large and congested.

Spleen.—Enlarged, congested; pulp soft; slightly amyloid.

Heart.—Slight endocardial thickenings.

Lungs.—No tuberculosis. No enlarged lymph nodes.

Microscopical Examination.—Lymphosarcoma with marked degeneration.

DISEASES OF VERMIFORM APPENDIX—122 cases, 117 operations, 28 deaths.

	Total cases.	Cured.	Deaths.
A. APPENDIX NOT PERFORATED.			
Acute or subacute non-perforative appendicitis (one case pregnant three months)[1]	31	30	1
Subacute appendicitis following evacuation of appendicular abscess	1	1	..
Acute non perforative appendicitis: intraperitoneal abscess	1	1	..
Acute gangrenous, non-perforative appendicitis (one case pregnant seven months)	6	6	.
Acute gangrenous, non-perforative appendicitis: thrombosis of vessels in mesenteriolum; septico pyemia	1	..	1
Acute gangrenous, non-perforative appendicitis; thrombosis of vessels in mesenteriolum; pyelo phlebitis; multiple septic infarctions in liver	1	..	1
	41	38	3

[1] Six cases not operated.

	Total cases.	Cured.	Deaths.
B. APPENDIX PERFORATED; LOCAL OR COMPLETE GANGRENE:			
(*a*) *Circumscribed peritonitis; abscess.*			
1. No free exudate in peritoneal cavity[1]	49	40	9
2. No free exudate in peritoneal cavity; gangrene of caput coli	1	1	..
3. Free exudate in peritoneal cavity	8	5	3
	58	6	12
(*b*) *Diffuse purulent peritonitis*[2]	21	8	13
(*c*) " " " *secondary subphrenic abscess*	2	2	..
	81	56	25

[1] One case pregnant five months.
[2] One case not operated; admitted moribund.

OPERATIONS—117 operations on 115 patients, 28 deaths.

	Cases.	Cured.	Deaths.
Appendectomy for non-perforative appendicitis:			
(*a*) Operated in acute attack	9	9	..
(*b*) " " interval[1]	16	15	1
Appendectomy for acute gangrenous appendicitis[2]	6	6	..
Appendectomy for acute gangrenous appendicitis; thrombosis of mesenteriolum	2	..	2
Secondary appendectomy following evacuation of appendicular abscess	1	1	..
Appendectomy; drainage of intraperitoneal abscess	1	1	..
For circumscribed peritonitis; abscess—			
Evacuation of abscess—drainage—no appendectomy—			
Ileo-inguinal route	15	14	1
Lumbar route	1	1	..
Evacuation of abscess; drainage; appendectomy[3]	42	31	11
For diffuse purulent peritonitis:			
Appendectomy; evacuation of abscess; *drainage;* drainage of peritoneal cavity	18	6	12
Appendectomy; evacuation of abscess; drainage; no drainage of peritoneal cavity	4	3	1
Secondary evacuation and drainage of subphrenic abscess	2	2	..

[1] One case pregnant three months; no interference with pregnancy.
[2] One case pregnant seven months; no interference with pregnancy.
[3] One case pregnant five months; death from septicemia; abortion before death.

REMARKS ON THE LESIONS AND TREATMENT OF APPENDICITIS.

Of the pathological changes produced by diseases of the appendix vermiformis, the local ones have been described to the minutest detail, whereas the lesions in the blood, liver, spleen, and other organs, removed from the site of the primary disease, have received but passing attention; and yet these latter are often of far more serious consequence to the welfare of the patient than are the local changes in the appendix and peritoneum. Furthermore, it is to be noted that these "distant lesions" bear no fixed relation in intensity to the local ones. Hence it is not always possible to determine from the local changes what the extent of the former is.

When the orifice of the diseased appendix becomes occluded, either by inflammatory swelling, volvulus, or an impacted foreign body or concrement, the tension of its septic contents is apt to become excessive. When this tension arrives at a very high point, the slightest variation, especially a further augmentation of pressure either by vomiting or by manipulations of the surgeon, may precipitate an injection of infectious and toxic material into the blood stream, causing toxemia and bacteremia. Such a septicemia may result fatally before the local changes in the appendix have had time to become manifest. The slower the rise in tension to a maximum high point, the more apt are the blood vessels to be shut off by inflammatory process, and consequently the less are the dangers of acute septicemia. In making the prognosis, the surgeon should always bear in mind that in a foudroyant case of appendicitis a general infection may have taken place before his arrival. Such has been several times our experience in having opened the abdomen within the first twenty hours of an advancing appendicitis. The appendix was found very rigid and tense, but not gangrenous, and the peritoneum was intact. Yet the patients continued to do badly after the operation and succumbed shortly afterward. The postmortem findings were completely negative. In some of these cases the blood has been found infected with the same organism that was resident in the appendix at the time of the operation.

Besides this immediate blood infection, are the changes that

at times occur in the blood vessels of the mesenteriolum. Arising either from an extension of the inflammation within the appendix to the vascular structures, or from a volvulus of the appendix and its mesenteriolum, these alterations in the blood vessels result in their thrombosis, which necessarily implies the possibility of metastatic lodgment of infected portions of the thrombus in the liver and other distant organs. Such thrombosis of the vessels of the mesenteriolum of the appendix may again be markedly in evidence, even though the appendix is neither gangrenous nor perforated. Often a chill with rise of temperature after the operation gives the first intimation to the surgeon that an infected blood clot from the thrombosed vessels has entered the general blood stream and lodged in the liver or other organs. This complication has occurred in two patients during the past year; their histories were as follows:

1900, vol. i. *Fulminant Gangrenous Appendicitis with Simultaneous Thrombosis of the Veins of the Mesenteriolum; Removal of a Totally Gangrenous Non-perforated Appendix 24 hours after the first onset of the malady. Purulent Phlebitis of Portal Vein; Multiple Abscesses and Partial Mass Necrosis of Liver; Death from Septico-pyemia 19 days after operation.*—E. O. L., 48 years old, banker, a man of large stature, somewhat obese and of a florid habit, heretofore, with the exception of a severe pneumonia passed through several years ago, in perfect health, had attended to his business up to noon on April 12, when he lacked appetite at luncheon and began to feel some pain in the abdomen. This was not severe enough for him to cancel a dinner party at his own house. Among the company was his family physician, who noticed that his host was rather pale and abstemious, but kept his seat at table till, late in the evening, his company dispersed.

The doctor, remaining behind, was told that the patient felt an atrocious pain in the iliac fossa. His pulse was then between 80 and 90, the temperature normal. A hypodermatic injection of morphia stilled the pain. The next morning the patient reported having spent a wretched, sleepless night. Shortly after midnight a severe chill had set in, lasting an hour and fifteen minutes, ending with profuse sweat. At 8 A.M. the patient vomited. At 9 A.M. the doctor found the temperature above 104°, the pulse 90, the pain in the iliac fossa still excessive. At 9:45 A.M. he was seen by Dr. Gerster. The abdominal wall was very rigid over the site of the appendix, elsewhere soft, and pressure over McBurney's point was exquisitely painful. Rectal examination revealed nothing unusual. The tempera-

ture was falling, and reached, by noon, 102° and a fraction. A slight icteric tinge was noticed in the sclerotic.

The case was declared to be a very grave one, needing speedy action, and the patient was transferred to the hospital, where the operation was performed at 1 P.M., that is, just twenty-four hours after the first manifestation of the trouble, and twelve hours after the first rigor.

The patient's internal organs, kidneys included, yielded no morbid signs.

After opening the abdominal cavity, a small quantity of turbid serum escaped. Readily the dusky, almost slate-colored appendix was brought to view, its situation being rather superficial. It was nowhere confined by adhesions. Its surface appeared mottled by yellowish spots and roughened by adhering shreds of fibrin. Its distended and erect condition and elastic, hard feel demonstrated that it was filled, almost unto bursting, by liquid matter, and nice handling was required to remove it whole and unbroken. Evidently its rupture was imminent and would have been followed by the most virulent septic peritonitis. While liberating it from its mesenteriolum, it was noticed that the latter was excessively brittle, permitting the ligature to cut through it immediately. And as blood flowed neither from vein nor artery, it was concluded that these vessels must be occluded—in short, that we had to deal with a mesenteric thrombosis, probably of a septic character.

The appendix was ablated close to the cecum, was in its entirety gangrenous, and filled with horribly fetid greenish-gray ichor. While distended and *in situ* its diameter was fully three-quarters of an inch. The removed portion measured 4½ inches.

A gauze wick drain was placed against the appendicular stump and was brought out to the surface. Except where this wick emerged, the wound was closed in the usual manner. The patient, a cool, cheerful, and resolute man, bore the operation excellently, and in the course of the next twenty-four hours his temperature and pulse were restored to the normal standard, the former being 76 to 84, the latter 98.6° F. The peritoneal symptoms had vanished, and affairs looked promising on the surface; but apprehensions were not lulled by these appearances of peace. On April 14 calomel and salts were given, and produced a number of liquid stools. The temperature rose to 102°, but the patient felt well and consumed and retained large quantities of liquid nourishment. During the night a slight chill occurred. April 15: A thorough examination of the wound was made; the wick drain was removed and was followed by a few drops of fetid serum. The belly was soft, painless, the patient expelling gases freely and retaining much

liquid nourishment. Examination of the lungs showed signs of congestion corresponding to both bases; but there being no pain and no dyspnea, it was concluded that the dull percussion sound and sharp breathing were caused by hypostatic changes —a most ominous sign. From this on the physical appearances of the lungs remained stationary to the end. The icteric hue of the sclerotics also became more noticeable. In the evening the patient vomited a large quantity of water, the melted product of much ice he had chewed and swallowed.

April 16: The temperature rose to 103.4°, with a marked chill. The wound was irrigated and dressed three times daily, discharging less and less of serum, on which floated a few drops of fat and a few shreds of necrosed tissue, evidently cast-off portions of the mesenteriolum. The belly remained soft, bowels moving daily. The liver and spleen slightly intumescent; the former not painful to forcible pressure and manipulation.

April 17: Local conditions unchanged. The urine showing no diminution of chlorides. Icterus more pronounced. Urine, barring the presence of bile pigment, normal. In the afternoon a long and severe chill, the temperature rising to 105.4°. Splenic tumor more pronounced.

From this on there were daily several more or less hard chills, followed by profuse sweating. With the chills the temperature rose to 105° and 106°; after profuse sweating it dropped to nearly the normal standard.

April 20: During the day three hypodermatic injections of 15 grains each of the hydrochlorate of quinine and urea were given without appreciable effect, except causing slight deafness. A blood culture yielded an absolutely negative result.

Though it was evident that we were dealing with a pyemic form of virulent sepsis, our efforts were not relaxed. From this date on, altogether eight injections of Marmorek's antistreptococcic serum, each dose consisting of 8 c.c., were made, and very well borne; but they did not alter the course of the malady.

April 21: Albumin was found in the urine, together with renal epithelium, a few granular casts and pus cells. The wound discharged scantily a colored and odorless serum. The swelling of liver and spleen had markedly increased, but there was no pressure pain. Severe chill, with a temperature of 106.6°; also, the appearance of a rash was noted.

And so it went on to the end. Chill after chill followed, the sensorium remaining perfectly unclouded to the very end. The belly remained soft, bowels active; food was well retained, except the last two days.

On April 25 the patient began to complain of pain in the

epigastric and hepatic regions, which was augmented by pressure. He was now deeply jaundiced, and there was no doubt that we had to deal with abscesses in the liver. The urine became more and more scanty, the pulse softer.

April 28: The stomach rejected all ingesta; but there was no vomiting if the patient abstained.

April 29: A marked collapse following one of the usual severe chills. But the patient rallied. Pulse remained remittent.

May 1: Out of full consciousness the patient fell back and died of heart failure.

Autopsy made on body of E. O. L., on May 2, 1900, 18½ hours post mortem:

Marked rigor; marked general icterus.

Wound.—Incision (wound) 12 cm. long, in right iliac region, covered with healthy granulations leading to a sinus which leads down and in, containing some cloudy fluid; intestines adherent to lower angle of wound. Sinus, where walls are covered with dark-colored fibrin, leads to appendical stump, which is covered with fibrin. Intestinal coils adherent to each other near stump of appendix.

Spleen.—Enormously enlarged; flabby; congested; section shows diffluent pulp; numerous small hemorrhages; 19 x 14 cm.

Kidneys.—Left: Enlarged; succulent; section shows congestion and marked degeneration; capsule somewhat adherent.

Right: Same; more flabby. Both kidneys and capsules are bile-stained.

Liver.—Very much enlarged, congested; parenchymatous degeneration. In portal vein there is a parietal thrombus covered by a layer of pus. Along its branches are a large number of abscesses, varying in size from miliary to those of 2 cm. in diameter. In dome of right lobe there are an enormous number of closely packed abscesses, between which the liver parenchyma is necrotic. Veins in mesentery near appendix not thrombosed.

Heart.—Right auricle markedly distended with postmortem clots; valves bile-stained; free edge of tricuspid thickened; right ventricle moderately dilated; muscle pale. Free edge of pulmonic slightly thickened. Left auricle markedly dilated; ventricle slightly hypertrophied; no dilatation; mitral slightly thickened; endocardium between mitral and aortic valves thickened; aortic valves slightly thickened; moderate atheroma of aorta and coronaries; muscle cloudy.

Lungs.—Left: At apex slight adhesions; emphysema of upper lobe; fibroid patch at apex; marked congestion and edema, especially at base; bronchial glands moderately enlarged and anthracotic.

Right: At apex fairly firm adhesions; very small calcareous nodule at apex; very marked edema and congestion, especially lower lobe; glands same.

Pancreas.—Congested and degenerated. In mesentery are two calcareous areas 1 cm. in diameter (healed tuberculosis ?).

Microscopically.—Pancreas, focal necrosis; kidney, congestion, hemorrhages, marked acute degeneration, marked inflammation.

Spreads.—Spleen, very few cocci; liver, numerous streptococci.

Cultures.—Right heart, coli; left heart, coli; abscess in liver, coli and streptococci; spleen, coli.

Diagnosis.—Appendectomy; purulent inflammation of portal vein (?); multiple abscesses of liver (streptococcus); acute hemorrhagic inflammation of spleen; chronic nephritis; acute hemorrhagic nephritis; acute degeneration of liver; hypertrophy of left ventricle; parenchymatous myocarditis; moderate atheroma of aorta; congestion and edema of lungs; focal necroses in pancreas.

1900, vol. ii., page 691. *Acute Gangrenous Non-perforative Appendicitis, with Thrombosis of Vessels of the Mesenteriolum; Appendectomy 72 hours after onset of the attack; Death from Septico-pyemia 17 days after operation.*—Milton S., 19 years old, a clerk, has had several previous mild attacks of appendicitis. Three days before his admission to the hospital on October 11, 1900, he commenced to have severe pain in the right iliac fossa. Forty-eight hours later he had a chill followed by high fever. On admission the abdomen was not distended, the right rectus muscle was rigid, and there was marked tenderness in the right iliac fossa. No tumor could be felt. His temperature was 102.8°, pulse 116. Urine normal. Immediate operation was proceeded with. The right iliac fossa was exposed by the usual incision through the rectus sheath. The appendix was at once found, lying quite superficially on the antero-lateral aspect of the ascending colon, surrounded by adherent omentum. The appendix was rigid and erect, and the blood vessels of its mesenteriolum thrombosed. The appendix was about 2½ inches long, non-perforated, obliterated at its apex, and its mucosa necrotic. The lumen was filled with ichorous pus. The mesenteriolum was secured with a stout catgut ligature, the appendix ligated at its base and ablated. The wound was closed by sutures, drainage being placed to the bed of the appendix.

Immediately after operation the temperature rose to 105.2°, the pulse rate to 148. Vomiting occurred after the administration of divided doses of calomel. The temperature receded toward evening. The next day (October 12) the temperature

again rose to 103.4°, the pulse to 144. Vomiting was repeated. The abdomen was soft, not tender, and the bowels moved freely. Toward evening singultus bothered the patient considerably. October 13 and 14 the condition remained the same. On October 15 the patient became delirious at times. The temperature and pulse elevations were not so high; on the other hand, icterus developed and the urine contained a few hyaline casts. On October 16 there was some tenderness over the liver; the abdomen was soft, the bowels moved daily, and nourishment was taken and retained. Singultus continued to trouble the patient very much. From day to day the patient's general condition became gradually worse; the temperature daily rose to 102° and 103°, the pulse rate proportionally, but the character of the pulse was growing gradually worse. The wound healed per primam. The abdomen remained soft. The icteric condition fluctuated in its degree of intensity; the cerebral condition was always clouded, at times delirious; the urine contained albumin and hyaline casts. The tenderness over the liver was not marked. On October 22 a blood culture was negative. The patient gradually grew weaker and weaker, and succumbed from exhaustion on October 28, 1900. Postmortem examination was not permitted.

In connection with blood infections might also be mentioned the acute toxemia that at times is seen to follow upon the evacuation of large, fetid, circumscribed abscesses in which the purulent contents were under high tension. It can be explained by the more rapid resorption by the blood vessels in the walls of the abscess cavity, on account of the negative pressure toward the blood vessels that ensues upon the relief of the compression exercised on the vascular structures by the contents of the abscess cavity. Such an acute toxemia was observed in one of our cases, and resulted fatally. As a prophylactic measure against such an absorptive toxemia, it is well to pack these large abscess cavities, whose contents are under high tension, with a tight tamponade of gauze, which should be gradually withdrawn. The history of the fatal case of acute toxemia following resorption from an abscess cavity was as follows:

1900, vol. ii., page 94. *Acute Perforative Gangrenous Appendicitis; Large Localized Abscess; Evacuation of Abscess; Removal of the Appendix; Drainage; Acute Toxic Resorption; Death on the third day following operation.*—Abraham S., 14

years old, a school-boy, was admitted in the afternoon of August 13, 1900. The present attack was the first one, and was of eight days' standing. Had one chill, followed by fever, the day before admission. A large tumor could be felt in the right iliac fossa, very painful and tender, and bulging into the rectum. Immediate celiotomy. No free fluid was present in the peritoneal cavity. A large abscess cavity occupied the iliac fossa; when it was opened there followed a gush of fetid pus. The appendix, perforated and gangrenous at the tip, lay in this abscess cavity. It was shelled out of its peritoneal coat and ablated. The cavity was thoroughly evacuated and drained by tube and gauze. The temperature declined to 99° immediately after the operation, but in the evening it rose to 102.6°. The following day the temperature rose to 103.2°, the pulse rate to 110. The discharge from the abscess cavity was profuse. The abdomen was soft and lax. The bowels moved freely and there was no vomiting. August 15: The temperature and pulse were still high, 103.6° and 136, respectively. The urine contained a large amount of albumin, no casts. Icterus developed, and the sensorium was clouded and delirious. August 16: During the night of August 15 the temperature continued rising, to 104°, 105°, and finally reached 108° in the evening of the 16th. The abdomen continued to be soft, not tender; the bowels moved, there was no vomiting. The wound looked well. The icterus was more marked. The high temperatures and pulse rate and the delirious condition were the only sypmtoms until death occurred on August 16.

No postmortem permitted.

Of the local pathological lesions, mention might be made of the peritoneal exudate that is at times found to accompany a circumscribed abscess. Such an exudate may be serous, or turbid, or sero-purulent, or even purulent in character: it is usually non-fetid, but may at times be malodorous. The presence of such an exudate does not imply the coexistence of a diffuse peritonitis with the abscess; for the peritoneal coat is not injected, the peritoneal glands are not intumescent, and the intestines are not distended. Such an exudate can be well compared to the edema that accompanies inflammations of the soft parts; and just as in the soft tissues the extent of the edema is proportional to the intensity and virulence of the local inflammation, so this peritoneal exudate is proportional to the intensity and virulence of the localized peritonitis. It is important prognostically, not that it indicates a diffuse peritonitis,

but that it points to a greater virulence and intensity of the local peritonitis. In the past year, for example, there were 46 cases of peritoneal abscess following perforative appendicitis, *without* a *peritoneal exudate*. Of these, 37 recovered and 9 died, a mortality of 19 per cent; whereas, of 8 cases with a peritoneal exudate, 5 recovered and 3 died, a mortality of 37 per cent. In 1897 and one-half of 1898 there were 18 cases *with* a *peritoneal exudate*, of which 7 died, or 38 per cent; and 85 cases without an exudate, of which 10 died, or 11 per cent. Clearly the presence of an exudate points to a higher degree of infectiousness of the localized peritonitis.

INDICATIONS FOR OPERATION.

A. At the time of an attack.

Naturally most of the patients entering the hospital in an acute attack do so for the purpose of operation. Our decision, whether to operate at once, is governed by considering the facial expression, the pulse rate, the local findings, the temperature, and the anamnesis.

(a) If, in an acute attack, the fever is moderate, the pulse rate below 100, slight or no local rigidity present, the patient is kept under close observation, and operation, for the time, is delayed.

(b) If the temperature rises, and especially if the pulse rate increases beyond 100, and the local rigidity becomes marked, immediate operation is proceeded with.

(c) If the anamnesis indicates a severe onset of an attack, with high temperatures and rapid pulse rate, followed within forty-eight hours by a rapid decline of the temperatures and pulse rate, with or without the indications of a local peritonitis, immediate operation is performed. For such a rapid decline from an intense and foudroyant onset indicates, as a rule, a gangrenous condition of the appendix, with a consequent relief of tension, and hence a temporary cessation of the violent symptoms. This is a most important class of cases; they are in most urgent need of operation, for delay in them means the dangers of a diffuse septic peritonitis. One such case was observed within the past year, and her history is as follows:

1900, vol. i. *Acute Perforative Gangrenous Appendicitis; Foudroyant Onset of Attack, subsiding suddenly 72 hours later; On admission absolutely no symptoms of Appendicitis; Operation 24 hours later, when Diffuse Peritonitis had Developed; Appendix occupied the Left Iliac Fossa; Death.*— Bessie W., single, a tailoress, was admitted December, 1900. She had never been sick before her present illness, which was of three days' standing. During this time she complained of severe abdominal cramp-like pains, especially around umbilicus, and of vomiting. High fever had accompanied the illness. On admission to the hospital she was bright and active; did not complain of abdominal pain. Her temperature was 104°, and pulse rate 120. So little did the patient complain of pain that the nurse, in reporting her to the House Surgeon, who was in the operating room, made no mention of any local symptoms. An hour after admission the temperature rose to 105°; when the nurse reported this to the House Surgeon, he ordered an antipyretic. On his evening visit to the wards the temperature had fallen to 102°. Physical examination revealed absolutely nothing. The abdomen was soft and lax; there was no pain or tenderness anywhere. The bowels had moved; there had been no vomiting. Rectal examination was negative. The patient was smiling and bright and said she felt relieved since entering the hospital. She was, however, kept under close observation; at midnight the temperature was 99°, the pulse under 100. It remained so during the rest of the night. The next morning, being the day on which the general visit of the wards was made, the patient was again very carefully examined. Her temperature was between 99° and 100°, the pulse rate about 90. She was bright and complained of no pain. Her abdomen was lax and soft, neither painful nor tender to palpation. Rectal examination was negative. The tongue was moist and coated. Further observation of the patient was considered necessary before establishing a diagnosis. During the rest of the morning the condition remained about the same. At 3 o'clock in the afternoon the temperature and pulse rate again commenced to rise, reaching 103° and 118, respectively, by 5 o'clock. The abdomen was very rigid and everywhere painful. The patient had vomited several times. There was very little question, at 5 o'clock, as to the presence of a diffuse peritonitis, but the primary cause thereof was still in doubt. Immediate celiotomy was performed. The abdomen opened by the Kammerer incision. The right iliac fossa was empty of an inflammatory mass. The peritoneum was intensely injected, no free fluid was present. The right tube and ovary were normal. The

caput coli was lying across the pelvic brim and reached over to the left iliac fossa. The appendix was found in this fossa. It was completely gangrenous, about as thick as the index finger, surrounded by very few adhesions, and perforated in several places, from which perforations, pus and ichor were leaking into the peritoneal cavity. The appendix was ligated and ablated and the site of its lodgment thoroughly drained. The patient bore the operation very well, but the symptoms of the peritonitis did not abate and she succumbed on the third day from a dry septic peritonitis.

(d) If a circumscribed abscess is found to be present, operation is always proceeded with at once.

(e) If a diffuse peritonitis exists, immediate operation is performed, unless the patient's condition is so desperate that the shock of an abdominal section cannot be borne. Experience has shown that, in such patients, it is best to delay operative interference. For in a certain number of these cases the diffuse peritonitis ceases to advance, the patients are able to throw off the septic absorption, the pulse improves, and the patients operated upon in this stage stand a much better chance of recovery than if operated upon in the stage of collapse. When delay is practised, the patients are kept under opium, ice applications are made to the abdomen, and free stimulation is employed.

B. In the so-called interval between acute attacks.

A patient who has had two distinct acute attacks of appendicitis is *advised* to have the organ removed. If, after one attack, the patient's occupation demands his leaving a large centre where immediate operation could be performed, he is advised to have the appendix excised. Operation is never urged upon these patients without distinctly and clearly stating that a certain risk is incurred by it. Even in a hospital, where trained assistants and nurses are using their utmost endeavors to maintain rigid asepsis, fatal infections may arise. The interval operation is not without its risks. They are slight, indeed, in comparison with the dangers of perforation and gangrene of the appendix, but yet they are risks that must not be ignored nor kept from the patient's knowledge.

During the past year, one fatal case occurred from acute septicemia following the interval operation. The history is:

1900, vol. i., page 643. *Chronic Obliterating Appendicitis; Appendectomy between two attacks; Acute Septicemia; Death.* —Adolph O., 37 years old, admitted February 17, 1900. Had had a number of attacks of appendicitis. He was in good physical condition and was operated upon February 19, 1900. A typical McBurney's operation was performed. The appendix was easily found, its mesentery and base ligated and the organ removed. The abdominal muscles united by catgut sutures. The appendix was obliterated in one-half of its extent. The patient vomited several times after operation. The next day the patient was apparently doing well; the temperature rose to 101.2°. Some fluid nourishment was retained. February 21: The patient had become very restless; was constantly belching gas, and vomited several times. The bowels could not be moved. The wound was dressed. The skin sutures opened and a small quantity of grumous material exuded. The rest of the abdominal wound was then opened, but nothing further abnormal could be found. The peritoneum appeared normal. The wound was packed. The patient, however, continued to do badly, vomited incessantly, the temperature and pulse rate rose, and exitus occurred on February 22, 1900.

TECHNIQUE OF THE OPERATION.

A. In the chronic cases, with unruptured appendix.

Incision.—Kammerer's incision is usually made, as affording the best exposure. It is placed over the outer half of the right rectus muscle, dividing the anterior layers of the sheath of the rectus. This muscle is then displaced to the inner side, the posterior sheath divided, and the peritoneal cavity opened. Care is taken not to divide the ileo-inguinal and last dorsal nerves and the deep epigastric vessels. Occasionally the inter-muscular incision of McBurney is employed, but it affords less space for manipulation, and not so complete an exposure of the iliac fossa. When primary union takes place the abdominal wall becomes just as firm after the Kammerer incision as after McBurney's; a secondary hernia in such cases never having been observed.

Treatment of the appendix.—The abdominal cavity having been opened, the caput coli is sought for and the appendix brought into the wound. The mesenteriolum and the appendix are then separately ligated with catgut, and both cut off, the stumps being thoroughly charred by the actual cautery. Inver-

sion of the stump of the appendix is never practised for the following reasons:

(a) Because from simple deligation no bad results have thus far been noticed in many hundred cases. The ligature has never slipped, nor has any infection of the peritoneum taken place from the stump of the appendix.

(b) Because inversion of the stump of the appendix is a complication in the procedure, and thereby opens up additional avenues for infection.

(c) Because, in a considerable number of cases, inversion is impossible for various reasons.

(d) Finally, because the suture on a distended colon involves the possibility of perforation by the needle, subsequent leakage and peritonitis, as experienced in a case observed in 1896.

The layers of the abdominal wall are restored anatomically, chromicized catgut being used for the buried sutures and simple catgut or silkworm for the skin. Tension sutures of silkworm are sometimes used in addition. The patients are kept in bed for fourteen days after operation. The wearing of an abdominal support is discountenanced, as tending to cause atrophy of the abdominal muscles.

B. In abscess cases.

The incision is placed directly over the abscess, if the latter is thought to be adjoining the abdominal wall or lumbar region; otherwise the Kammerer incision is employed.

The free peritoneal cavity is protected by gauze packings and the abscess cautiously incised and slowly evacuated. If the abscess cavity is small and can be thoroughly emptied and cleansed, search is instituted for the appendix. If the latter is found to be densely adherent, its peritoneal coat is split and the mucosa shelled out of it. Where the abscess cavity is large and consequently its cleansing impossible, or where the walls are covered by necrotic, decomposing tissue, extensive search for the appendix is abandoned. That the removal of a diseased appendix from an abscess cavity at the time of the primary operation is attended with additional risks can readily be seen from our own results. Thus, during the past four years there have been 145 cases of *appendicular abscess* in which *simple*

incision and drainage was performed. Of these, 15, or 10 per cent., died. In the same period there have been 111 cases of appendicular abscess in which, in addition to evacuation of the abscess cavity, the appendix was removed. Of these, 28, or 25 per cent., died. It must, of course, be remembered that in the vast majority of the cases of the first group the patients were not radically cured of their disease, surgical efforts being confined to the evacuation of the pus. In a number of these cases the disease must have recurred, and has recurred to our knowledge, some patients having returned to the hospital for secondary operations. Of these recurrent cases, some have died in an acute attack, with or without operation; or the appendix has been removed during the quiescent period and this operation has been attended by a slight mortality. Adding this subsequent mortality to the 10 per cent. attendant upon the primary operation, there would be approximately a gross result of 14 to 15 per cent., leaving still a difference of about 10 per cent. in favor of the operation of evacuation and drainage of the pus. This does not mean that the appendix should not be removed, in abscess cases, at the primary operation, for very often it can be excised without subjecting the patient to any added risk. It does indicate, however, that the extirpation of the appendix should not be attempted where this necessitates the breaking down of many adhesions surrounding a large abscess cavity that cannot be thoroughly evacuated and cleansed.

Whether the appendix is or is not removed, the abscess cavity is drained by tube or gauze, and the abdominal wound partly closed by through-and-through sutures.

C. In diffuse peritonitis cases.

The usual procedure is to remove the diseased appendix, evacuate the purulent exudate within the peritoneal cavity, and establish a comprehensive system of drainage. Where the intestines are much distended, one or several coils are withdrawn from the abdominal cavity, carefully isolated, and incised with a narrow bistoury. After affording exit to their contents, the small opening is at once closed with a few Lembert sutures. A second abdominal incision is sometimes made in the left iliac region to facilitate the complete removal of the purulent peritoneal material.

With the consent of Dr. Gerster, Dr. Berg has, during the past 18 months, treated 6 cases of diffuse purulent peritonitis without drainage. He has fixed the indication for drainage on the appearance of the peritoneum at the time of operation. Where the peritoneum is intact and uncovered by granulations or fibrin, drainage has been dispensed with for the following reasons:

(1) The peritoneum, even when it is the seat of intense inflammation, provided it remains smooth and uncovered by granulations or fibrin, possesses an extremely rapid resorptive power. By this attribute it can efficiently protect itself against the local action of bacteria and amply provide for removal of an exudate within its cavity. Such physically unaltered peritoneum needs no drainage. It is to be distinctly noted, however, that when the peritoneum becomes rough and covered by granulations or fibrin, it loses its rapid resorptive power and hence its protective and auto-drainage attributes. Such areas of altered peritoneum must consequently be drained.

(2) Drainage tubes and gauze hinder and retard the rapid resorptive attribute of the peritoneal membrane by interfering with the activity of the peritoneal cells. The local sedimentation of bacteria is, therefore, favored by their use.

Moreover, gauze packings may produce acute kinks in the intestinal coils by the adhesions that form around them, thus causing intestinal obstruction (observed four times, with fatal results, within the past year); and through the medium of drains a secondary infection of the peritoneum may take place.

His technique is as follows: The right iliac fossa is exposed by the Kammerer incision; the appendix is sought for and isolated; if its base is gangrenous, this is inverted into the caput coli, otherwise it is ligated and the organ removed. When an abscess surrounds the diseased appendix it is at once evacuated and packed with gauze. The free peritoneal cavity is then thoroughly dried out with soft sea sponges passed, by means of long holders, into all the fossæ and spaces. If the peritoneal tissue is uncovered by fibrin or granulations or pyogenic membrane, no drainage of the free peritoneal cavity is established. Where such changes have taken place, each such

altered portion of the peritoneum is drained, counter-incisions being made where necessary. Where no drainage is established the peritoneum is closed with catgut, the outer wound being packed, or a gauze diaphragm, lined on its under surface with rubber tissue, is placed just within the abdominal walls to prevent prolapse of the intestines, and the outer wound is packed. Through-and-through silkworm sutures were at first used to close the abdominal wound, but extensive stitch-hole infection occurred. This stitch-hole infection in one case gave rise to an extensive abdominal wall phlegmon, with reinfection of the peritoneal cavity and death on the sixteenth day after operation.

(These six cases will be reported at a future time.)

DISEASES OF THE LIVER—10 cases, 8 operations, 4 deaths.

	Total cases	Cured.	Deaths.
Specific hepatitis [1]	1	1	..
Perihepatitis, specific	1	1	.
Carcinoma of liver [2]	1	..	..
Suppurative hepatitis [1]	1	.	..
Single abscess	4	2	2
Multiple abscesses, actinomycotic	1	..	1
" " amebic	1	..	1

[1] Not operated. [2] Not improved.

OPERATIONS.	Total cases.	Deaths.
Exploratory laparotomy for perihepatitis	1	..
Celiotomy for drainage of liver abscess	2	1
Costo-pleural operation for drainage of subphrenic and liver abscess.	4	3
Exploratory laparotomy for carcinoma of liver	1	..

That so many cases of suppurative liver disease have been treated in the surgical service during the past year is greatly owing to the systematic employment of the exploring needle in all cases of suspected liver abscess. Whereas formerly it was customary to wait until a large liver, with possibly the indications of local pointing of an abscess and hectic fever, rendered clear the diagnosis of liver suppuration, to-day it is the rule to aspirate all cases where liver suppuration is strongly sus-

pected, even though the classical signs are not all present. Used thus early, exploration with the needle has been found devoid of much risk, provided a small-calibred needle is used and all antiseptic precautions are observed. Never has a peritonitis resulted either from the aspiration or from the extravasation of pus through the puncture hole. It is unfortunate, however, that such an early diagnosis has rarely availed us in saving the patient. For in our climate the type of liver abscess is frequently the multiple one, in which the surgeon's efforts prove futile. Far more radical measures at drainage would seem to be demanded to cure a multiple suppuration of the liver than those that were or could be hitherto employed.

As Regards the Etiology in Our Cases.—In four the liver abscess was secondary to an ulcerative colitis, the latter being actinomycotic in one case and amebic in another. In two of the cases no primary cause for the suppuration in the liver could be ascertained. In those cases following colitis the abscesses were multiple in two and single in two. In one of the latter the abscess wall was made up of necrotic liver tissue about 2 inches thick. The actinomycotic suppuration was in multiple foci. In those cases of unknown primary causation the abscess was single. In two of the cases the pus had ruptured into the subphrenic region; in one of the latter a large blood vessel in the liver must have been eroded, for a large amount of fibrin-covered blood clots were found, on operation, in the peritoneal cavity.

In the symptomatology it is worthy of note that jaundice was not noted before operation in any of these cases.

Technique of Operation.—The operation is usually performed in one sitting. If the abscess is pointing anteriorly, the incision is placed over its most prominent part. If, after opening the peritoneal cavity, the liver is found to be adherent to the abdominal parietes, the liver tissue covering the abscess is divided with a scalpel or cautery knife, the choice depending on its thickness. If the liver is not adherent, the free peritoneal cavity is protected either by a gauze barrier or by suturing an area of liver tissue to the parietal peritoneum, covering the suture line by a strip of gauze, and incising the liver tissue within this area.

When the liver abscess points posteriorly it is attacked by

the costo-pleural route. A vertical or horizontal incision is placed over the tenth and eleventh ribs in the mid-axillary line; these two ribs are then resected subperiosteally in their axillary portions. If the costo-pleural sinus has been obliterated by adhesions, an incision is carried through the adherent pleural layers down to the diaphragm, which is then incised and the liver exposed. Should the latter be non-adherent, it is sutured to the diaphragm and the abscess then incised. Where the costo-pleural sinus is not obliterated, one of two methods of procedure has been followed: (1) either the pleura is stripped up from the ribs and the diaphragm and the latter incised *subpleurally*, or (2) the pleural cavity is opened, the phrenic pleura sutured to the costal pleura, and the abscess incised *transpleurally*. The latter procedure is to be preferred in those cases where there is turbid fluid in the pleural cavity, for it permits of draining the latter.

Although it has been our custom to operate in one sitting, no infection of the pleural cavity or peritoneum can be traced to this practice. Empyema has developed, but rather from a giving way of the pleural sutures where transpleural drainage has been used, than from a direct infection of the pleural cavity at the time of operation. *The subpleural route*, by avoiding the dangers of primary or secondary empyema, is to be preferred in all cases where the pleural layers are not too thin or too brittle to permit of the manipulations necessary for stripping them up from the parietes and diaphragm.

1900, vol. i., page 14. *Single Abscess of Liver; Septicemia; Exploratory Celiotomy; Location of the Abscess on the Posterior Aspect of the Convexity of the Liver; Drainage of the Abscess by the Costo-pleural Route; Death.*—Max R., 29 years old, a candy maker, admitted January 19, 1900. Gave a history of having had gonorrhea eight years before and of long-standing hemorrhoids. His present history commenced two days before admission, with severe pains in the right hypochondrium, not radiating, with chill, fever, and sweating. His stools were dark in color, urine normal. Efforts at coughing and straining were associated with severe pain in the right hypochondrium. On admission the liver was found to be enlarged, extending from the fourth space to two fingers' breadth below the ribs; there was tenderness in front in region of the right free costal border, but this tenderness was not always localized in the same point by the patient. No friction râles over

the liver. Temperature 101.4°. Urine showed a trace of bile, otherwise was negative. The following day the tenderness was still present and the temperature ranged between 100° and 102.4°. On January 21 an exploratory celiotomy for liver abscess was made. The gall bladder and ducts were normal; the appendix was normal, but nevertheless removed. The stomach and kidneys were normal. As the hand was passed across the convexity of the liver, some pus was seen to issue from the liver high up near its superior posterior surface. The abdominal incision was therefore closed and the abscess attacked by the costo-pleural route, the ninth rib being resected. The abscess was found, evacuated, and drained. The cavity was about the size of a hen's egg.

The reaction from the operation was good; there was some vomiting immediately afterward. In the evening the temperature rose to 101.4°, pulse rate to 124, and the patient was very restless. On the second day after operation the bowels were moved by enemata and calomel and salines. The temperature fluctuated between 99° and 102° daily, and the pulse rate remained quite rapid, about 120, although stimulation was administered. The abscess cavity drained well; there were no pulmonary symptoms; the abdomen was soft and lax. The cerebral condition was clouded and at times delirious. Evidently the patient was still septic, but no other focus of pus could be detected in the liver and no signs of any other purulent collection in the abdomen were manifested. The septic condition retarded the union of the abdominal walls, so that when the sutures were removed, on the eighth day, the edges of the wound parted and permitted some prolapse of the viscera. The urine contained albumin. The septic condition increased in intensity, the temperature fluctuated between 100° and 104°, the pulse became progressively more rapid and feeble, until exitus occurred fourteen days after operation.

Postmortem through the wound. Liver.—No other foci of suppuration. The abscess cavity was almost obliterated by granulations. Acute degeneration of the parenchyma. *Kidneys.*—Acute degeneration. *Spleen.*—Enlarged, soft, and pulpy. *Appendix.*—At site of the stump of the appendix was a large abscess, which communicated with the lumen of the intestine at site of ablated appendix. The ligature at base of appendix had been absorbed, permitting of local extravasation with abscess formation.

1900, vol. ii., page 336. *Large Single Abscess of Liver following Ulcerative Colitis, with Thick, Necrotic Walls; Broncho-pneumonia; Incision of Abscess by Costo-pleural Route; Drainage; Death from Exhaustion on the ninth day after operation.*—Hyman G., 61 years old, admitted September 28, 1900. Had been operated upon two years before for vesical calculus.

Eight days before admission he commenced to complain of pain in the right hypochondrium, which was increased on deep inspiration. He had alternating constipation and diarrhea.

Physical examination revealed a bilateral pneumonia; slight fulness and marked tenderness in the axillary line over the lower three intercostal spaces. The liver extended one finger's breadth below the free border, and upward to the normal limits. Aspiration in the tenth space, anterior axillary line, yielded turbid yellow pus containing no tubercle bacilli. Leucocytosis was 20,300. Temperatures varied between 99° and 103°, pulse rate from 100 to 120, and respiration from 20 to 32 per minute.

October 1: Incision and drainage of the abscess by costotranspleural route, under local eucaine (6 per cent.) anesthesia. The tenth rib was resected, the diaphragmatic pleura sutured to the parietal pleural, the diaphragm incised, and a large liver abscess, the size of an orange, that had ruptured into the subphrenic space, evacuated. Drainage by tube and gauze. Reaction from the operation good. The first few days after operation the patient was very ill from the complicating pneumonia. The latter partly resolved from the fourth day after operation, but the physical signs never entirely disappeared. The temperature continued elevated from 100° to 102°, and the pulse rate was accelerated, though good in quality. The abscess cavity showed no tendency to granulate, and discharged freely. From the seventh day after operation the pulse commenced to weaken, and the patient's general condition became worse; the abscess cavity continued to be necrotic and ragged. Continued weakening, and death from exhaustion on the ninth day.

Postmortem. Marked Ulcerative Colitis.—The abscess wall in the liver not defined, but constituted of thick (two inches) necrotic tissue with purulent infiltration.

Lungs.—Indications of resolved pneumonia.

1900, vol. i., page 994. *Multiple Actinomycotic Abscesses of Liver following Actinomycotic Colitis; Incision by Costopleural Route; Death.*—Max C., 16 years old, an electrician, was admitted June 11, 1900. He gave no previous history of diarrhea or stomach trouble. The present illness was of eight days' standing, during which time he suffered from one chill, fever, and sharp pain in the right epigastric region, with marked prostration. On admission the temperature was 103.4°, respiration 56, pulse 120. There was marked pain over the liver, especially along the axillary and scapular lines. The liver was not enlarged downward, but the right dome of the diaphragm was pushed upward considerably, especially behind, where it reached to the angle of the scapula. Aspiration

of the liver in the tenth interspace, axillary line, yielded a thick liver pus. Operation was immediately proceeded with. A transverse incision was made over the ninth rib, and the axillary portions of the ninth and tenth ribs were resected subperiosteally. The pleural cavity was incised and the pleura was found to be perfectly normal. The costal pleura was sutured to the diaphragmatic pleura, and the diaphragm, which was very edematous, incised. A large subphrenic abscess was at once opened into, communicating with a ragged abscess cavity in the right lobe of the liver about the size of an orange. Along the lateral aspect of the liver and ascending colon were a number of large decomposing blood clots covered with fibrin. There was considerable hemorrhage from the ragged abscess cavity in the liver, which was checked by a tamponade of gauze. The blood clots were evacuated, the subphrenic and liver abscess drained, and the outer wound, which had to be enlarged downward, treated openly.

The patient reacted well from the operation; a few hours later he became delirious; his pulse became very rapid and feeble, the temperature rose to 106°, and death occurred twenty hours after operation.

Postmortem Examination showed a marked colitis and multiple abscesses in both lobes of the liver. The size of these abscesses ranged from that of a pea to that of a hen's egg. Microscopical examination revealed the presence of actinomyces in the colon ulcers and in the liver abscesses.

1900, vol. ii., page 67. *Multiple Amebic Liver Abscesses Secondary to Amebic Colitis; Incision and Drainage of Liver Abscess by Abdominal Route; Death.*—Max U., 52 years old, a carpenter, was admitted August 20, 1900. The patient had suffered from yearly attacks of diarrhea. The stools, during these attacks, were watery in character, but contained no blood. Twelve days before his admission the patient had a chill and fever; diarrhea set in and considerable pain in the epigastric and left hypochondriac regions was present. The pain became more marked and constant, the diarrhea continued, the stools being watery, but containing no blood. The pain extended to the right hypochondrium. On admission the liver reached from the fifth space to one finger's breadth below the free border. The spleen was slightly enlarged upward to percussion. In the epigastrium was a bulging, tender mass, filling completely the costo-xiphoid space, and extending downward to within two inches of the umbilicus. This mass was very tense, elastic, non-fluctuating; it did not have any respiratory movement. The percussion note over it was flat, the flatness merging above with that of the liver. The transverse colon could be percussed below the mass. Stomach tympany could not be

made out. Temperature 104°. Immediate celiotomy was proceeded with. An incision was made directly over the mass. The parietal peritoneum was very edematous, and on incising this a large abscess cavity was immediately opened into. The abscess cavity was filled with necrotic, whitish tissue and very foul-smelling, yellowish-white pus. The walls of the abscess cavity, which was as large as a cocoanut, were formed of necrotic tissue. The abscess extended backward to the spinal column. The relations of the abscess cavity could not be accurately determined. Above it appeared to be the liver, and below the transverse colon, but the stomach was not visible. The abscess was drained by tube and gauze, and a dry dressing applied. The patient was very weak after the operation. The temperature was 98°, pulse 108, respiration 18. In spite of active stimulation, subcutaneously and intravenously, the patient's pulse gradually became weaker and weaker, and he died eighteen hours after the operation, in collapse.

Postmortem showed extensive amebic colitis and miliary amebic abscesses of the liver. The abscess which had been incised occupied the under surface of the right lobe, and reached backward to the spine, lying directly in front of the stomach.

DISEASES OF THE GALL BLADDER AND BILE DUCTS—16 cases, 15 operations, 8 deaths.

	Cases.	Deaths.
Cholelithiasis· empyema of gall bladder[1]	1	..
" stones in the gall bladder; hydrops of the gall bladder	3	1
" stones in the gall bladder; empyema of gall bladder; extensive fibrinous pericholecystitis	1	..
" stones in the gall bladder and cystic duct; empyema of gall bladder	4	2
" stones in common duct; contracted gall bladder	3	1
" stones in common duct; contracted gall bladder; empyema of gall bladder	1	1
Carcinoma of gall bladder and bile ducts[2]	2	2
" " head of pancreas; obstructive jaundice[2]	1	1
OPERATIONS		
Cholecystostomy	7	2
" and cysticotomy	1	1
Choledochotomy	2	..
" and cholecystectomy	1	1
Cholecystectomy	1	1
Exploratory celiotomy for carcinoma[2]	2	2
Cholecystenterostomy[2]	1	1

[1] Not operated. [2] Recovery from operation.

While the number of patients treated for calculous disease of the biliary system was not large, it will be noticed that every site of lodgment of the stone, and all the pathological changes due to long standing biliary lithiasis, were dealt with. Only three of our cases were simple ones of calculi lodged in the gall bladder, with hydrops of that viscus; in all of the nine others further pathological changes had occurred. This partly explains the high mortality that has attended our surgical efforts to rid the patients of their disease. But besides the presence of complications, other factors have entered into causing a higher mortality than is usually ascribed to these operations.

Firstly: Our patients rarely submit to operation in the early stages of the disease when they are in good physical condition. They delay until their vital powers have been weakened to such a marked degree by numerous recurrent attacks that they are not able to withstand the shock accompanying the necessarily prolonged manipulations for removing deeply seated and firmly impacted stones in the cystic and common bile ducts. Thus two of our patients succumbed from this cause. (See histories of vol. ii., page 593, and vol. ii., page 536, 1900.)

Secondly: Patients who suffer from numerous recurrent attacks of biliary colic develop quite frequently a chronic type of septic, non-suppurative cholangitis, which may give very slight or even no indications of its presence, in the *interval between the attacks* of biliary colic. During or after such an attack, however, or after an operation upon the biliary system, this septic cholangitis may acquire a high degree of toxicity, probably owing to the traumatism inflicted upon the mucous membrane by the passage of a stone or by the operation. In this highly toxic form it may result in the death of the patient, and on autopsy there are found only the lesions attendant upon a chronic type of sepsis, *viz.*, fatty degeneration of the liver and kidneys and a soft, pulpy spleen. The peritoneum is normal. A fatal result from such an infectious cholangitis has occurred in one of our cases. The patient reacted well from the operation. Six hours later the temperature commenced to rise, marking 106° twelve hours after operation, and death ensuing within a few hours after that. (See history, vol. ii., page 541.)

The postmortem examination revealed the changes indicated above.

As regards the diagnosis and technique of operation, our methods do not differ materially from those described in our report of last year.

1900, vol. ii., page 14. *Cholelithiasis; Stones in Gall Bladder; Hydrops Vesicæ; Cholecystostomy and Drainage; Death.*—Esther J., 47 years old, admitted August 11, 1900. The patient had suffered from a number of attacks of biliary colic. She had entered the medical service in an attack, and, after its subsidence, had been transferred to the surgical division for operation. There was no icterus on her admission to the surgical service. The gall bladder could be felt as a small, rounded mass beneath the liver. It was not very painful or tender on pressure. August 11: Celiotomy. Oblique transverse incision parallel to the costal border. Gall bladder exposed and found surrounded by some old adhesions. After separation of these adhesions, the gall bladder was opened and a number of small faceted stones removed. The gall bladder was fixed to the abdominal wall by sutures, and the edges of the opening into the viscus were inverted around a drainage tube leading into its lumen, by a purse-string suture. Dry dressing. The patient reacted well; the urine contained a trace of albumin; the temperature rose to 101° in the evening, the pulse from 120 to 140. She was bright and complained of no pain. Bile was copiously drained from the gall bladder. The next day the pulse continued very rapid, in spite of free stimulation. August 13, the following day, the pulse became very rapid and feeble, although the temperature remained about 100° to 101°. The pulse remained thus rapid throughout the morning, when suddenly the patient sank back in bed, *dead.*

Postmortem examination through the wound showed no peritonitis. The liver was normal in size; was fatty; contained no calculi. Gall bladder not dilated. There had been no leakage around the drainage tube. The cystic duct small; the hepatic dilated and contained a stone. The choledochus dilated and contained one large, conical stone, size of hazelnut. This stone was freely movable. The duct was much hypertrophied and its mucosa at the papilla markedly thickened.

Kidneys.—Enlarged; capsules adherent; markedly congested.

Spleen.—Normal.

Heart.—Normal in size; some endocardial thickenings.

Lungs.—Negative.

1900, vol. ii., page 854. *Cholelithiasis; Stones in the Gall Bladder; Extensive Fibrinous Pericholecystitis; Cholecystostomy and Drainage; Recovery.*—Brune L., 60 years old, admitted May 11, 1900. Never had any previous attacks of biliary colic; never had been jaundiced. The present illness was of three days' standing. It commenced with sudden onset of pain in right hypochondrium, and this pain has continued ever since. The bowels moved once; the color of the stool was not noticed. On admission the patient was not icteric, the temperature was 100.6°, pulse rate 120, respiration 36. There was a large mass in the right iliac and umbilical regions, very tender to pressure, separated by an area of tympanitic resonance from the liver; to its inner side and below was also a tympanitic area. The gall-bladder region was not tender. The respiration was labored, and the lungs showed the signs of a marked hypostatic pneumonia. The diagnosis of cholecystitis was not positive; in fact, it was believed that the patient was most probably suffering from a suppurative appendicitis. Immediate operation on admission, under cocaine local anesthesia. Incision over the tumor mass. Peritoneum was found much edematous. In the right iliac fossa was found an extensive fibrinous exudate which led upward to the liver. This fibrinous exudate covered over the gall bladder, which was much enlarged and reached downward to the iliac fossa. The gall bladder was isolated, evacuated of its purulent contents, then incised, and two stones the size of small walnuts removed from it. Bile flowed freely into the gall bladder when the last stone was removed from the orifice of the cystic duct. Further exploration revealed no more stones. The gall bladder was anchored to the anterior abdominal wall, the margin opening into it inverted by a large purse-string suture around a drainage tube passing into the lumen of the viscus. Closure of the abdominal wound in part; dry dressing.

The patient reacted well; bile was freely discharged from the gall bladder; the drainage tube was removed from the gall bladder on the tenth day; gradual closure of the biliary fistula, and the patient was discharged *cured* July 21, 1900.

1900, vol. ii., page 536. *Cholelithiasis, Impacted Stones in the Distal Extremity of the Cystic Duct; Stones in the Gall Bladder; Empyema of the Gall Bladder; Cholecystostomy and Drainage; Death.*—Regina M., 41 years old, admitted September 14, 1900. For two years past the patient had suffered with epigastric pain radiating into the back. The pain came on in attacks and was accompanied by vomiting and constipation. The stools were always of normal color. The pain had become almost constant for the last two months, with exacerbations

every two weeks. The patient had never been jaundiced; never had any fever until three days before her admission. Then she had a severe chill, followed by fever. On admission the temperature was 101.4°, pulse 100. In the right hypochondrium could be felt a tumor about the size of a hen's egg, very painful to pressure, and moving with respiration. Urine contained albumin and a trace of bile. Liver enlarged to one finger's breadth below the free border. September 17: Celiotomy. Incision along the outer edge of the right rectus muscle. The gall bladder was found deeply seated beneath the liver, embedded in dense adhesions. The adhesions reached over to the pyloric end of the stomach and caused a slight degree of constriction of the pyloric orifice. The adhesions were divided and a contracted gall bladder exposed. The deep situation of the gall bladder rendered necessary an additional transverse incision outward at right angles to the first one. The gall bladder was emptied of its purulent contents by an aspirating syringe, the viscus incised and a number of stones removed from it. Exploration of the cystic duct revealed some stones firmly impacted in its distal end. Attempts to dislodge the stones into the gall bladder by pressure applied from the outside of the duct were futile. After considerable manipulation, the stones were dislodged by a long forceps introduced into the cysticus from the gall bladder. It was impossible to bring the deeply seated gall bladder up to the abdominal wall, and the walls of the viscus were so brittle that the margins of the opening into it could not be closed around a drainage tube passed into its interior. A protective gauze barrier was, therefore, built up around the gall bladder and the latter drained by tube and gauze. Part closure of the abdominal wound. The operation was quite prolonged, lasting one and one-half hours. During its course the patient's pulse showed signs of weakness, and active stimulation was required. In the evening the pulse was 102 and weak, temperature 98°. During the early morning hours the pulse again became very weak, and, in spite of renewed vigorous stimulation, the patient succumbed sixteen hours after operation.

Postmortem not permitted.

1900, vol. ii., page 593. *Cholelithiasis; Stones in Gall Bladder and Impacted in the Distal End of the Cysticus; Empyema of the Gall Bladder; Cholecystostomy; Cysticotomy; Drainage; Death.*—Fanny N., 21 years old, admitted October 20, 1900. For two years the patient had suffered every four or five weeks from recurrent attacks of biliary colic. About two months before admission, was jaundiced after an attack. Four days before admission she had a very severe attack, accompanied by

chills and fever. On her entrance to the hospital there was marked tenderness in the right hypochondrium, the right rectus muscle was very rigid, and an indefinite mass could be palpated in the region of the gall bladder. No jaundice. Temperature and pulse slightly elevated. October 22, 1900: Celiotomy. Vertical incision through the right rectus muscle. The gall bladder was perfectly free, considerably distended, and quite superficial. The contents of the viscus, consisting of sero-purulent material, was evacuated by an aspirating syringe. The gall bladder was then incised, and exploration revealed a stone deeply and firmly impacted in the distal extremity of the cysticus. All attempts at dislodging the stone into the gall bladder by pressure applied from the outside of the duct were futile. Equally impossible was it to remove the stone by forceps introduced into the cysticus from within the gall bladder. The cysticus was, therefore, incised from the outside and the stone removed. It was about the size of a pigeon's egg. The duct was drained by tube, likewise the gall bladder, the latter being sutured to the abdominal wall. Closure of part of the abdominal wound. No bile flowed from the gall bladder after the removal of the stone.

The patient reacted poorly from the rather prolonged operation. The pulse became very weak and intermittent. Temperature elevations were moderate, the highest being 101°. In spite of vigorous and repeated stimulation, the pulse gradually grew weaker and weaker, and exitus occurred forty-eight hours after operation.

Postmortem through wound. Gall Bladder.—Hypertrophied and its mucosa ulcerated. Contents slight in amount and consisted of thick bile with admixture of pus. The distal end of the cysticus was thickened. Hepaticus and choledochus normal. Behind the choledochus was a very large, white, firm lymph node.

Liver.—Congested. *Spleen.*—Slightly enlarged and congested.

Kidneys.—Chronic interstitial nephritis and congestion.

Heart.—Normal.

1900, vol. i., page 69. *Cholelithiasis; Impacted Stone in Common Bile Duct; Obstructive Jaundice; Choledochotomy; Suture of the Common Duct; Recovery.*—Hannah L., 42 years old, had been operated upon at her home two and one-half months before for empyema of gall bladder and cholelithiasis. On account of the infectious condition of the gall bladder at that time, it was deemed inadvisable to make a search for further stones in the cysticus and common ducts. Recovered completely from the first operation, but, about five weeks later, had

an attack of biliary colic, which has recurred a number of times. Is always slightly jaundiced, but is especially so immediately after an attack of colic. The patient suffers from intense pruritus. Stools are clay-colored. On admission the temperature was 100°, pulse 100. Urine contained a trace of albumin and bile. Patient was slightly icteric. The abdomen showed the scar of the previous operation to be firm. There was no pain, but deep palpation along the course of the common duct elicited some tenderness. December 28, 1900: Celiotomy. Transverse incision at right angles to the previous scar. Peritoneum incised. Many firm adhesions around the gall bladder and ducts. Separation of these adhesions and exposure of the common duct. Exploration of the cystic and common and hepatic ducts revealed the presence of a stone in the retroduodenal portion of the common duct. This stone was movable and could be easily displaced into the proximal portion of the duct. The duct was fixed with silk sutures, incised, and the calculus removed. Closure of the duct with silk sutures placed in a Lembert fashion. Gauze protective strip to the suture line in the duct, and closure of the abdominal wound. Reaction from the operation excellent. No leakage occurred from the duct. The gauze strip was removed in forty-eight hours. The wound healed per primam. The jaundice disappeared, and the patient made an excellent convalescence, being discharged cured January 12, 1900.

1900, vol. i., page 938. *Cholelithiasis; Contracted Gall Bladder; Obstructive Jaundice; Impacted Stone in the Common Duct; Choledochotomy; Suture of the Duct; Cholecystectomy; Secondary Hemorrhage from Liver; Death.*—Selde A., 32 years old, admitted May 22, 1900. The patient's history dated seven weeks prior to her admission, when she had the first attack of biliary colic. Since then the attacks have been quite frequent. For five weeks the patient had been jaundiced, the latter varying in degree. The stools at times have been clay-colored. On admission the patient was in good physical condition, was icteric, but complained of no pruritus. The liver was considerably enlarged, extending four finger breadths below the free border. The gall bladder could not be palpated. There was slight tenderness over the liver. Urine contained bile, and the stools were clay-colored. June 1: Choledochotomy and cholecystectomy. Abdomen opened by a vertical incision through the right rectus muscle. The gall bladder was covered by numerous omental adhesions. After division of the latter the gall bladder and ducts were exposed. The bladder was small and contracted, and showed a constriction near its apex. This constriction was found to coincide

with a similar constriction in the interior of the gall bladder, giving to the latter an hour-glass shape. The gall bladder contained no stones. Exploration of the ducts revealed a stone in the retroduodenal portion of the common duct. This was dislodged, with some difficulty, into the free portion of the duct, and, after incising the latter, it was removed. The duct was sutured with fine catgut. The contracted gall bladder was then separated from the liver, considerable dissection being necessary for this purpose, the cystic duct ligated with catgut, and the viscus removed. The raw surface of the liver, representing the bed of the adherent gall bladder, did not bleed much, but was nevertheless tamponed with gauze. A gauze drain was also passed to the site of the suture in the common duct. Closure of the abdominal wound. The patient reacted well from the operation, and did well until 12 o'clock midnight. The pulse rate then jumped from 90 to 126 and became weaker. The nurse in charge, however, failed to report the condition until early morning, when the pulse rate had become 140 and very feeble. Active stimulation was then employed. At 7 o'clock in the morning the House Surgeon notified the Attending of the desperate condition of the patient. Immediate examination of the wound showed that a hemorrhage had taken place. The patient was at once removed to the operating room, anesthetized, and the abdominal wound opened. The peritoneal cavity was found full of freshly clotted blood, which had resulted from a continuous oozing from the raw liver surface where the gall bladder had been embedded. The peritoneal cavity was cleansed, the oozing stopped by suturing the neighboring liver surface over the raw portion and by cauterizing the oozing surface. Tamponade and reclosure of the abdomen. In spite of repeated saline infusions, the patient did not rally, and died about 5 o'clock the same afternoon.

Postmortem through wound.—Some bile in the peritoneal cavity. No blood clots. The under surface of the liver raw at the site where the gall bladder had been, and covered with small clots. Cystic duct had been incised and sutured in its proximal end. Union was good, except at lower angle, where there was a slight leakage. Walls of the cysticus very thick and its lumen markedly dilated. The ligature on the distal end of the cysticus was tight. The cysticus was three and one-half inches long, and joined the hepaticus just above the hepatic flexure of the duodenum. Choledochus was one and one-quarter inches long. The walls of the hepaticus and choledochus were not thickened. No signs of peritonitis.

1900, vol. ii., page 541. *Cholelithiasis; Stones in Gall Bladder and Common Ducts; Empyema of Gall Bladder; Contracted Gall Bladder; Cholecystectomy; Death.*—Betty L., 31 years old, admitted September 2, 1900. The patient had repeated attacks of biliary colic for six years. Jaundice usually followed the attacks. On admission the patient, an exceedingly obese woman, weighing about 300 pounds, was suffering from such an attack of biliary colic. The temperature was 101°, the pulse rate about 100. The marked obesity made palpation very difficult, but in the gall bladder region could be felt a firm, hard, tender mass underneath the liver. Urine was normal. September 3, 1900. Cholecystectomy. The abdomen was opened by a vertical incision at the outer border of the right rectus muscle. Numerous adhesions covered over a deep-seated gall bladder. These were divided and the gall bladder exposed. This was of hour-glass shape. Exposure of the gall bladder was exceedingly difficult, on account of the great thickness of the abdominal walls and the deep position of the viscus. The gall bladder was aspirated of its purulent contents and then incised. Its lumen was divided off into three distinct compartments each of which contained calculi. The marked changes in the gall bladder necessitated its extirpation, as drainage of its cavity was impossible. The dissection of the viscus from the liver was again very difficult and had to be done entirely by the sense of touch. The cystic duct was fully ten inches from the surface, and high up underneath the liver. It was impossible to throw a ligature around it, so a clamp was applied to it and left *in situ*. Palpation of the common bile ducts was attempted, but it was impossible to gain access to the retroduodenal portion, although the abdominal incision was an ample one. Gauze tamponade of the bed of the gall bladder, drainage, and closure of the rest of the abdominal wound. The operation had lasted two hours. Reaction was not good. In the early morning hours of the next day the temperature commenced to rise, and at 8 A.M. it was 104°. The pulse was proportionally rapid. No signs of peritonitis. The temperature and pulse continued to rise, the former reaching 106° before death at 2 P.M.

The urine, after operation, contained 2½ per cent. of albumin and casts.

Postmortem. Liver.—Was congested, soft, and showed fatty and acute degeneration, with focal necroses. The site of the gall bladder was covered with a blood clot.

Hepatic and stump of cystic ducts free. In the *retroduodenal portion of the common bile duct* were two freely movable

stones. Near the papilla of the common duct was a small ulcer, due to a stone.

Kidneys.—Very soft and large; capsules adherent.

Spleen.—Soft and pulpy, and very large.

Peritoneum.—Congested in the region of the gauze packings. No indications of peritonitis. On wall of stomach a small area of pressure contact due to the clamp around the cystic duct.

1900, vol. ii., page 654. *Cholelithiasis; Stones in Common Bile Duct; Hydrops of the Gall Bladder; Contracted Gall Bladder; Choledochotomy; Suture and Drainage of the Common Duct; Recovery.*—Mollie R., 47 years old, admitted to the medical service January 22, 1900. Suffered from repeated attacks of biliary colic for two years. The last attack, four weeks before admission, was accompanied by high fever. Patient had been jaundiced for some time, and complained considerably of pruritus. She had lost forty-eight pounds in the last year. On admission she was deeply jaundiced and the liver was slightly enlarged. Urine contained albumin and casts. On January 28, while in the hospital, she had another attack of colic. No stones found in the stools, which were clayey in color. The gall bladder was very tender and contracted.

February 26, 1900: Celiotomy. Transverse incision parallel to the costal margin. Numerous and very dense adhesions of the stomach and colon to the gall bladder and liver, which were with difficulty divided. The gall bladder was found contracted, and the cystic duct converted into a short cicatricial band. The contents of the gall bladder, consisting of thick, glairy mucus, evacuated. The common duct was much dilated, and in its retroduodenal portion could be palpated a movable stone. The common duct was fixed by silk sutures, the stones dislodged into its free portion, the duct then incised, and the stone removed. The duct was immediately drained by tube and closely sutured around it.. The stone had the shape of a conical rifle projectile, its square base resting on the orifice of the duct. Further exploration was negative. The gall bladder was drained, and the abdominal wound closed throughout most of its extent. Operation lasted one hour and twenty minutes. The reaction was good; bile flowed from the drainage tube in the duct. The tube was removed on the sixth day, but some bile was discharged from the sinus leading down to the common bile duct until the eighteenth day. The jaundice disappeared. The sinus in the abdominal wall gradually closed by granulations, and the patient was discharged cured April 5, 1900.

1900, vol. i., page 39. *Primary Carcinoma of the Gall Bladder and Bile Ducts; Secondary Malignant Pyloric Stenosis; Exploratory Celiotomy; Death from Exhaustion 16 days after operation.*

1900, vol. i., page 736. *Primary Carcinoma of the Bile Ducts; Secondary Nodules in the Liver; Obstructive Jaundice; Exploratory Celiotomy; Death from Continuous Capillary Hemorrhage 15 days after operation.*—It is to be noted in this case that the capillary hemorrhage, which was from the edges of the abdominal incision, could not be checked, in spite of the application of every known resource.

1900, vol. i., page 699. *Carcinoma of the Head of the Pancreas; Obstructive Jaundice; Cholecystenterostomy (Murphy Button); Recovery and Partial Relief following operation; Death from Exhaustion 52 days after operation.*—The anastomosis was made between the gall bladder and the jejunum. Marked relief followed the operation. The pruritus disappeared, the appetite improved, and the jaundice diminished. Gradually, however, the strength commenced to fail, the cachexia became more pronounced, and death occurred on the fifty-second day after operation. The button had not been passed.

Diseases of the Female Genital Organs—16 patients, 15 operations on 13 patients, 2 deaths.

The diseases of the female genital organs are assigned to the gynecological service. Women treated for these ailments in our service were either private patients or had been admitted to the surgical division with no definite diagnosis.

Diseases.	Total cases.	Cured.	Improved.	Unimproved.	Died.
Hydrocele of round ligament	1	1	..	..	..
Urethral caruncle	1	1	..	..	..
Abscess of clitoris; salpingitis; pelvic abscess; septicemia	1	..	..	..	1
Endometritis; prolapse of uterus	1	1	..	..	..
Carcinoma of uterus	1	..	1	..	..
Chronic salpingitis	1	..	1	..	..
Ovaritis	1	..	..	..	..
Ovarian cyst, single	4	3	..	1	..
" " pyosalpinx; chronic appendicitis	1	1	..	..	..
" " double intraligamentous	1	1	..	..	..
Sarcoma of ovary	1	1	..	..	..
Fibroma of uterus	1	..	..	..	1
Pyosalpinx, bilateral	1	1	..	..	..

Operations.	Total cases.	Died.
Excision of hydrocele sac	1	.
Removal of urethral caruncle	1	.
Incision of abscess of clitoris	1	1
Curettage for endometritis	1	.
" " carcinoma uteri	1	.
Rectocele	1	.
Cystocele	1	.
Celiotomy for ovarian cyst (removal)	3	.
" " " " and pyosalpinx (removal)	1	.
" panhysterectomy, for pyosalpinx	1	.
" " " fibroids	1	1
" for bilateral intraligamentous cysts	1	.
" " ovarian sarcoma	1	.

1900, vol. i., page 904. *Abscess of Clitoris; Pelvic Abscess; Double Salpingitis; Septicemia; Incision of Clitoric Abscess; Death.*—Etta L., 20 years old, single, admitted April 21, 1900. Her history was of five days' standing, during which time she suffered from vomiting, general abdominal cramps, and fever and diarrhea. Urination normal. Menstruation normal. On admission she was apathetic; her tongue was coated, the abdomen was soft and lax, the spleen was enlarged. At site of the prepuce was a small, tender mass, the size of a walnut, pressure over which caused pus to exude alongside of the clitoris. A mass the size of a lemon could be palpated in the left vaginal fornix. Temperature 106.4°, pulse 112 and weak. Urine contained albumin, casts, and red blood cells. The following day there was a chill and a rise of temperature to 106°. The clitoric abscess was incised and the pelvic mass aspirated per vaginam, but the aspiration yielded negative results. A blood culture remained sterile. Smears of the pus from the clitoric abscess showed streptococci and diplococci. April 23, marked jaundice developed. The temperatures fluctuated between 100° and 106°. The patient gradually grew weaker and finally succumbed on April 26 from septicemia.

Postmortem twelve hours after death. *Lungs.*—Small amount of cloudy fluid in left pleura. Lungs congested and edematous. On surface numerous abscesses, varying from miliary in size to half of a centimetre in diameter, and surrounded by a large hemorrhagic area.

Heart.—Pale; left ventricle hypertrophied.

Spleen.—Very much enlarged. Congested. Pulp very soft.

Liver.—Enlarged. Congested. Yellowish in color.

Gall bladder and ducts normal.

Kidneys.—Acute fatty degeneration; congestion.

Adrenals and Pancreas.—Normal.

Abdomen.—Small amount of free bloody fluid in peritoneal cavity.

Uterus and Adnexa and External Genitals.—In clitoris is an abscess cavity about one-half cm. in diameter. Uterus normal. In both tubes, of which the lumina are not dilated, is a purulent secretion, the walls being congested.

In the left broad ligament is an abscess cavity, about 5 cm. in diameter, containing whitish green pus.

Cultures from pus in clitoris showed streptococci; from pus in broad ligament, streptococci and colon bacilli; from pus in abscesses in lung, streptococci and a few bacilli. The bacilli some of them stained with Gram.

Culture of blood from spleen showed colon bacilli and streptococci.

MISCELLANEOUS ABDOMINAL DISEASES—10 patients, 12 operations on 9 patients, no deaths.

	Total cases.	Cured.
Abscess of abdominal wall	2	2
Acute pancreatitis (?) simulating intestinal obstruction	1	1
Peritonitis	1	1
Enlarged mesenteric glands simulating subacute appendicitis	1	1
Intraperitoneal, subhepatic abscess	1	1
Tubercular purulent peritonitis	1	1
Extraperitoneal, iliac-glandular abscess	1	1
Left subphrenic abscess; epigastric intraperitoneal abscess; empyema	1	1
Right subphrenic abscess, ruptured into the right pleural cavity	1	1

OPERATIONS.	Total cases.	Cured.
Evacuation and drainage of mural abscess	2	2
Exploratory celiotomy	2	2
1. Acute pancreatitis (?).		
2. Enlarged mesenteric nodes.		
Celiotomy and drainage of peritoneum for tubercular purulent peritonitis	1	1
" and drainage of subhepatic abscess	1	1
Transpleural drainage of right subphrenic abscess	1	1
" " " left subphrenic abscess[1]	1	1
Celiotomy and drainage of epigastric abscess[1]	1	1
Resection of rib for empyema pleuralis[1]	1	1
Estlander's operation for chronic pleural sinus[1]	1	1
Extraperitoneal incision and drainage of iliac-glandular abscess	1	1

[1] In one patient.

1900, vol. i., page 576. *Acute Pancreatitis (?) Simulating Acute Intestinal Obstruction; Laparotomy; Recovery.*—Louis K., 22 years old, a tailor, was admitted February 26, 1900. Two days before, after a heavy supper, he commenced to have intense pain around the umbilicus, with vomiting. The vomiting continued almost incessantly; the bowels were obstinately costive (he is supposed (?) to have had a slight movement after an enema the morning of his admission). There was no chill or fever, but marked and intense prostration.

On admission the abdominal wall was retracted and rigid, marked pain and tenderness in the epigastrium. There was a flat percussion note over the entire abdomen. Heart and lungs were negative. The temperature was 96°, pulse 90, respirations 22; *marked general prostration.* Urine contained trace of albumin; no sugar; a few uric acid crystals. The stomach was washed out, the washing yielding a gallon of fluid. The bowels could not be made to move by high enemata. It was concluded, from the examination, that either an intestinal obstruction high up in the duodenum was present, or that the gastric and intestinal symptoms were reflexly excited by an acutely inflamed pancreas. Exploratory celiotomy was at once performed. The whole intestinal canal was completely collapsed. The peritoneum was not injected, but in the omentum could be seen numerous whitish areas that appeared much like fat necrosis. Some of these were excised for microscopical examination. Further exploration revealed no other abnormalities. The pylorus was patent. The liver, gall bladder and bile ducts, and the kidneys were normal. The stomach was slightly distended. No especially marked swelling of the pancreas could be detected. Closure of the abdominal wound. Reaction from operation good. No vomiting after operation.

February 27, the following day: Temperature 100.6°, pulse 104. General condition good; no vomiting; bowels were moved by calomel and salines. Urine, acid, 1028, trace of albumin; no sugar; urea 3½ per cent.

February 28: Stools contained undigested milk; otherwise normal.

March 2: The abdominal wound healed per primam. *Both parotid glands tender and swollen.* This glandular involvement subsided, under ice applications, in one week. The patient gradually convalesced and was discharged cured March 18, 1900.

The excised portions of omentum were reported by the pathologist to show nothing abnormal.

1900, vol. i., page 244. *Left Subphrenic Abscess; Epigastric Intraperitoneal Abscess; Empyema of Left Pleural Cavity; Evacuation and Drainage; Persistent Pleural Sinus; Estlander's Operation; Recovery.*—Annie R., 19 years old, a tailoress, was admitted in the evening of August 28, 1899. Three weeks before she had suddenly collapsed and had intense general abdominal pain. This was followed by high fever (107°). The pain and fever continued almost constantly until three days before admission, when the abdominal pain became less marked, but cough and pain in the left chest developed. On admission there were physical signs of fluid in the left chest. Liver extended one and one-half finger breadths below the costal border. In the left hypochondrium, and extending downwards into the left umbilical region, pushing the spleen downwards and forwards into the left inguinal region, was a hard, brawny induration, very tender, and giving the feeling of deep fluctuation. In the epigastrium was a small area of induration about the size of an orange. Temperature 103°, pulse 118, respiration 20. Aspiration of the left hypochondrium yielded very foul, brownish pus.

Immediate evacuation and drainage of the left subphrenic abscess was proceeded with. The eighth and ninth ribs, in their axillary portions, were resected. As the costo-pleural sinus was obliterated by adhesions, the adherent pleural layers and diaphragm were incised and the subphrenic abscess cavity opened and evacuated. The inner wall of the abscess cavity was formed by the spleen, which was much enlarged and covered with thick fibrin, and at its lower pole it presented a small, whitish area which appeared to be an infarction. A section of this white, splenic tissue was removed for pathological examination. It showed only the evidences of acute inflammation. The abscess cavity was drained by tube and gauze. The left pleural cavity was then aspirated and turbid serum obtained. It was not deemed advisable to drain the pleural cavity, on account of the presence of this turbid serum; spontaneous resorption of such an exudate often occurring when the exciting cause of the effusion is removed. On account of the extremely septic condition of the armamentarium after the evacuation of the subphrenic abscess, it was deemed inadvisable to incise the epigastric abscess at this time.

The patient reacted well from the operative attack, but the temperatures persisted between 101°+ and 103°+; the cough persisted, and the physical signs in the left chest remained the same. The abscess cavity was well drained and was contracting. The left pleural cavity was aspirated, but the tap was dry. No tubercle bacilli could be found in the sputum. The urine contained a trace of albumin. The epigastric induration be-

came larger and more tender. Deep fluctuation could be felt on September 15, and the abscess was at once incised and drained. The pus was of the same fetid, brownish character as had been evacuated from the subphrenic region. The abscess cavity was well encapsulated and did not communicate with the subphrenic abscess cavity. After the evacuation of this abscess, the patient's condition improved for a time, but the temperatures still ranged between 101° and 102°. The right kidney was enlarged and tender, and was thought to be the cause of the septic temperatures. Although the urine gave no indications of kidney suppuration, yet it was thought possible that the enlarged and tender kidney might contain a sacculated abscess. An exploratory nephrotomy was performed, but nothing was found. The kidney and lumbar incision were at once sutured and healed primarily. The left chest was again aspirated, although several recent aspirations had yielded negative results. This time thick, foul pus was withdrawn. The pleural cavity was at once drained, the eighth rib being resected. A sacculated abscess cavity was found, which explained the negative taps of previous occasions. After this last operation the temperatures gradually declined and the general condition of the patient improved. The abscess cavities gradually contracted and closed, but the pleural sinus persisted, requiring an Estlander's operation for effecting its obliteration. The patient improved very much when all the suppuration had ceased, and was *discharged cured* March 2, 1900. During this long siege of illness no cause could be ascertained for the original subphrenic abscess.

1900, vol. ii., page 175. *Right Subphrenic Abscess Ruptured into the Right Pleural Cavity; Evacuation and Drainage; Recovery.*—Esther S., 42 years old, admitted June 10, 1900. She had had some uterine trouble for a number of years. For nine days before admission she suffered with sharp, cramp-like pains in the right hypochondrium, radiating into the back, with chills, fever, and continuous vomiting and obstinate constipation. The last stool the patient had was dark in color. There was no jaundice. At time of admission (12 noon) the patient complained of no pulmonary symptoms, her temperature was 101°, pulse 120, and respirations 30. Physical examination showed flatness in the left axillary region, extending from the fourth rib downwards and merging with liver flatness. The chest showed no abnormalities, outside of the elevation of the right dome of the diaphragm. There was marked pain and tenderness over the lower ribs in the axillary region and also over the right hypochondrium. Liver flatness extended to the costal border.

At 5 o'clock in the afternoon the temperature suddenly rose to 103.4°, the pulse to 150 and became very weak, and respirations to 60 per minute. A second physical examination at this time yielded flatness in the right chest, from the third rib downwards, with markedly diminished voice and breathing over the lower part of the right lung. No râles. Otherwise the physical signs were unaltered. The sudden rise in the respiration and pulse rate suggested a perforation into the pleural cavity of a subphrenic collection of pus. Aspiration of the subphrenic space through the eighth space, axillary line, yielded thin, yellowish, non-odorous fluid of a faint acid reaction, containing a few red cells, a moderate number of pus cells, no liver cells, no bacteria. At 7 o'clock the patient's condition was so desperate that surgical interference could not be entertained, from fear of collapse on the table. Under vigorous hypodermatic stimulation and subcutaneous saline infusions the patient's pulse improved somewhat in quality, although still very rapid, 180 to the minute, and at 10 o'clock operation was proceeded with under local anesthesia.

The ninth and tenth ribs were resected in their axillary portions and the pleural cavity opened. The pleura was glistening, but sero-purulent fluid was present in large amount. The dome of the diaphragm was much elevated; aspiration beneath the diaphragm yielded the same fluid as had been withdrawn before. The pleural cavity was shut off by suturing the diaphragmatic layer to the parietal layer, a gauze drainage of the cavity being provided. The diaphragm was then incised and a large amount of thin, yellow pus evacuated. The liver was aspirated in several directions, but nothing was obtained. The subphrenic abscess was drained by tubes and gauze.

The patient bore the operation very badly and required very active stimulation. For several days she was *in extremis*, with very wretched, rapid pulse and rapid, shallow respirations. The temperature elevations were high, 103° to 104°. A pneumonia of the right lower lobe developed, which resolved very slowly, and was followed by a sero-hemorrhagic exudation into the right pleural cavity. Gradually, however, the general condition improved, the lungs cleared, and the pulse became stronger and less rapid. The wound filled up by granulations and the patient was discharged cured July 29, 1900.

No definite cause of the subphrenic abscess could be ascertained.

HERNIA—42 cases, 2 deaths.

	Total.	Cured.	Improved.	Not improved.	Deaths.
Inguinal, uncomplicated	15	14	..	1	..
" congenital	8	8	..	..	..
" recurrent	2	2	..	..	..
" per glissement	2	2	..	..	..
" double	3	3	..	..	..
" strangulated	5	4	..	..	1
" " (per glissement)	1	1	..	..	..
Femoral	1	1	..	..	..
" strangulated	1	..	..	..	1
Umbilical	1	1	..	..	..
Ventral	2	2	..	..	..
" double	1	1	..	..	..

REVIEW OF THE CASES OF UNCOMPLICATED HERNIA.

During the past year there were admitted to the service a total of thirty cases of uncomplicated inguinal hernia. With the exception of one case, they were all operated upon; operation in this case was temporarily postponed, on account of advanced pulmonary emphysema and chronic bronchitis, but on readmission this case was also operated upon successfully under local anesthesia. As three of the cases were double herniæ, it may be said that the operation for the radical cure of hernia was performed thirty-two times.

Bassini's operation was practically the operation of choice in all cases; exception being made in one case only, a case of relapsing hernia, upon which an operation by the Bassini method was performed six months previously; in this case the operation was carried out by Halsted's method. In cases of congenital hernia, that is, in those cases where the testis is in part within the hernial sac, the lower part of the sac was left *in situ*, and out of it a tunica vaginalis was formed by suture.

While it is well known that the region of the scrotum is particularly difficult of sterilization, the operation for the radical cure of hernia requires such care in the asepsis that important deductions may not inappropriately be made from the results obtained. It is, however, not an easy matter to classify these

cases, as the individual mind may be at considerable variance. A very careful and impartial scrutiny, however, a scrutiny which would be more likely to err on the negative side, shows a perfect primary union in all but four of the cases. Of the four which did not heal by primary union, one, a sliding hernia of the size of a child's head, was treated by the open method; in the second case the line of union of the skin broke down, but without marring the result or protracting the stay in the hospital; in the third case there occurred a slight necrosis of the aponeurosis; and in the fourth case there was considerable necrosis of the aponeurosis. If these four cases are excepted, the average number of days that the patients stayed in the hospital subsequently to the operation was only seventeen.

It may not be devoid of interest to remark, in brief, that in the course of the year we came across three cases of hernia of the so-called "sliding" variety; one upon the right side contained the cecum, the other two on the left side contained the colon. As is well known, these cases present to the operator remarkable obstacles in the reduction and proper retention of the hernial contents, and also in the proper closing of the neck of the sac. In all three of the cases the sac was liberated as high as possible upon the anterior aspect, and liberated also to a sufficient extent from the prolapsed intestine, so as to permit a closure by a continuous catgut suture. The operation itself was finished as usual by the method of Bassini.

Only one case of uncomplicated femoral hernia presented itself for radical treatment, the operation, in this case, being performed by the Bassini method.

STRANGULATED HERNIÆ.

Seven cases of strangulated hernia required operative treatment during the past year, *viz.*, five cases of strangulated oblique inguinal hernia, one case of strangulated inguinal hernia per glissement, and one case of strangulated femoral hernia. Two of these cases terminated fatally.

1900, vol. i., page 487. *Strangulated Inguinal Hernia; Operation; Septicæmia; Death.*—Bertha L., 75 years of age, was admitted to the hospital on April 2, 1900, with a history of

having had a hernia for a number of years, and presenting symptoms of strangulation of four days' duration. Operation upon admission under chloroform anesthesia. On opening the sac there escaped a large amount of a dark bloody serum of a fecal odor. A presenting knuckle of constricted intestine appeared to be viable, and was returned; but a tightly constricted piece of omentum was completely gangrenous and had to be resected. Partial gauze drainage of the peritoneal cavity. Open treatment. On the day following the operation a general icterus was noticed, with a corresponding rise in the temperature and pulse rate. This condition persisted, with but slight alteration, up to the fatal issue five days later.

1900, vol. ii., page 287. *Strangulated Femoral Hernia; Gangrene of Intestine; Operation; Death.*—Gertrude R., 45 years of age, was admitted to the hospital on September 30, 1900, with following history: The existence of a hernia is unknown to the patient. Present illness began six days ago with sudden and severe pains in the epigastrium, radiating to the back and to the sides, and accompanied by vomiting and constipation; bowels have moved only very slightly after repeated enemata. The vomiting persisted; everything that is ingested is promptly vomited; the vomited matter is of a dark brown fluid nature. On examination the abdomen is found to be flat, not distended; some general tenderness, most marked in the right iliac region. There is present in the left groin a small, hard, non-painful tumor about the size of a large walnut; no redness or other signs of inflammation.

Operation upon admission. Ether anesthesia. An incision made over the mass in the left femoral region brought to view a strangulated femoral hernia. The sac was covered by a thick layer of properitoneal fat; on opening the sac there was an escape of a turbid serum. The hernial contents were found to be a loop of small intestine, which was completely strangulated up to and for some distance beyond its mesenteric attachment. The constriction was relieved by dividing Poupart's ligament. After relieving the constriction, however, the intestine was found to be beyond recovery. The condition of the patient was so poor that a resection of the intestine was not to be thought of, hence the loop of intestine was merely anchored into the wound by a few sutures and packings. Open treatment. During the operation the pulse was so poor that it required considerable stimulation. At the termination of the operation the pulse was still very weak and rapid (160). In spite of very energetic stimulation, this condition persisted until death a few hours later.

The interesting feature of this case was the difficulty in the diagnosis. Only after a most careful and searching examination was the small hernia discovered, and, while the symptoms complained of were referable only to a strangulation, there were so few symptoms traceable directly to the hernia that there existed but faint hope that the process was due to it. The particularly remarkable fact was evident that, in spite of the complete strangulation of an entire knuckle of intestine, there was not the slightest trace of distension. It was assumed at first that the case was one of a strangulated Littré's hernia, but at the operation it was seen that the entire lumen, including a portion of the mesentery, was completely strangulated beyond recovery.

On account of the peculiar anatomical conditions, it may not be amiss to insert a brief extract from the histories of two cases of strangulated hernia in very young infants.

1900, vol. ii., page 851. *Strangulated Inguinal Hernia; Operation; Recovery.*—August B., aged 4 months, was admitted to the hospital August 10, 1900. About two hours before being seen by a physician, the mother noticed for the first time a small mass in the right inguinal region; this mass was pear-shaped, about the size of a small egg, and extended from the region of the inguinal canal into the scrotum. It was both painful and tender. The child had vomited repeatedly; its bowels, regular up to that day, had not moved. Gentle taxis was at once attempted, and, this being unsuccessful, another attempt at reduction was made under anesthesia. But this was also unsuccessful, and the child was admitted to the hospital for operative interference.

Operation seven hours after the strangulation was noticed. An incision was made over the long axis of the tumor, which was found to be a strangulated congenital hernia. As rapidly as possible the entire sac was liberated from the surrounding structures, when, without opening the sac, and without cutting or dilatation at the neck of the sac, there was no trouble in reducing the hernial contents. Ligature of the sac near the testis and high up near the internal inguinal ring, and resection of the intermediate portion, followed by suture of the superficial structures, terminated the operation. Duration twelve minutes. Perfect primary union. Patient was discharged cured fourteen days later.

1900, vol. ii., page 858. *Strangulated Congenital Inguinal Hernia; Operation; Recovery.*— Milton F., three months old, was admitted on September 30, 1900, at ten o'clock in the evening, when following history was obtained: The child was born prematurely (at seven months), and almost mythical stories are related by his mother regarding the size and weight. At birth his length was reputed to be not more than ten inches, and his weight only one and one-half pounds. While he continued to live, he never thrived very much, so that his weight, a few days before admission to the hospital, was still only a trifle less than six pounds. For three days the child has cried continuously and begun to vomit, which continued up to the time of admission. The mother is also certain that the child vomited fecaloid matter. On the morning of the day of admission, the mother noticed for the first time a tense swelling in the left inguinal region (it may, however, have existed there before without her knowledge). Bowels moved by enema once, two days before admission, but refused to do so since, in spite of efforts to move them by medication.

Status presens.—General condition very poor. In the left side of the scrotum there is a very tense, painful, and tender mass about the size of an egg. The skin covering it, particularly in the lower portion, is red and edematous. It is irreducible and presents all signs of a strangulated hernia.

Operation immediately on admission; chloroform narcosis. An incision was made over the mass in the left inguinal region and the sac immediately opened. The aponeurosis of the external oblique was *not* divided, but there was no trouble in reducing the greatest portion of the hernial contents, large and small intestine—normal in appearance. There was, however, still one more loop of small intestine, which resisted all attempts at reduction. The incision was, therefore, extended downward upon the scrotum, and there was found beyond a constricting ring within the hernial sac a loop of strangulated small intestine about four inches in length, of a deep purplish color, with the peritoneum still glistening; under hot applications it rapidly regained its color. There was now no more difficulty in reduction, and this was rapidly accomplished. The testicle was also found to be gangrenous and was extirpated. On account of the bad condition of the child, the sac was not extirpated, but merely sutured with a continuous catgut suture at the internal inguinal ring and the inferior portion also obliterated by suture. Suture of the overlying structures, with drainage at the inferior angle. Duration of the operation, twenty minutes.

The subsequent course was not as smooth as might be de-

sired, being marred by an intercurrent broncho-pneumonia. There was also considerable difficulty in feeding the child. Both of these disturbances were taken care of by Dr. Koplik, Visiting Physician to the Children's Wards. On the 18th of October the child developed an inflammation of the mastoid process, and was transferred for operation to the service of Dr. Gruening, with his herniotomy wound, with the exception of a minute superficial granulating surface, practically healed.

The interesting and unique part of both of these cases lies in the fact that the strangulation occurred in both cases, not, as is usual, at the external or internal inguinal rings or at the neck of the sac, but low down in the scrotum near the testis. This occurrence can be accounted for only by a congenital malformation in the tunica vaginalis, there being an absence of a complete closure. It would exceed the limits of this report to bring, in this place, an explanation and proof of the possibility of such an occurrence. Both cases, with a résumé of the development and anatomical relation, were described at some length in an article read at the December (1900) meeting of the Metropolitan Medical Society, which will shortly be published in the New York *Medical Record*.[1]

VENTRAL HERNIA.

The three cases of ventral hernia (in one case double) treated during the year resulted in one case in the scar of a colostomy incision, and in the other two cases after operations for appendicitis. The cases were treated by liberation of the adherent intra-abdominal structures, and an exact layer suture of the abdominal walls. All of the cases terminated in a perfect cure.

[1] Appeared in the New York *Medical Record*, April 22, 1901.

KIDNEY AND URETER—14 cases, 19 operations on 11 patients.

	Total.	Cured.	Improved	Not improved	Died.
1. Renal calculus; hemorrhoids	1	1			
2. " calculus; pyonephrosis; impacted ureteral calculus; chronic nephritis of opposite kidney	1				1
3. Hematuria; multiple fibromata of kidney (tuberculosis?)	1	1			
4. Dystopia renalis; nephrolithiasis; bilateral pyelonephritis	1				1
5. Periodical hydronephrosis of right kidney; atrophy of ureter; secondary periureteral abscess	1				1
6. Pyelonephritis; ureteritis	1		1		
7. Ascending pyonephrosis	1	1			
8. Calculous pyonephrosis; perinephritic abscess; fecal fistula	1				1
9. " pyonephrosis	1				1
10. Tuberculosis of right kidney	1	1			
11. " " ureter	1	1			
12. Hydronephrosis (periodic ?)[1]	1			1	
13. Pyelitis and cystitis [1]	1			1	
14. Tumor of kidney [1]	1			1	

List of Operations	Total.	Cured.	Improved	Not improved.	Died.
Nephrotomy	5				
Nephrectomy	7				3
Ureteroplasty (Fenger)	1				
Ureterolysorthosis (Verrière)	1				
Uretero-lithotomy (vaginal)	1				1
Ureterectomy	1				
Incision of perinephritic abscess	1				
" " periureteral abscess	2				1

[1] No operation.

1899, vol. ii., page 139. *Renal Calculus; Hemorrhoids; Cystoscopy; Nephrotomy; Cystoscopy; Ureterolysorthosis; Recovery.*—Scholem B., tailor, 34 years old, admitted June 24, 1899. For the past twenty months patient complained of pain in the left lumbar region, recurring in attacks twice or three times weekly, and lasting for several hours. The intervals are free from pain. For the past two months urination became frequent and was very painful during the attacks. Occasionally had fever, but no chills or

sweats. Never noticed blood in urine. Stream not diminished in size. Though appetite was good, had lost considerable weight. Was somewhat constipated. On admission the temperature was found to be 103°, pulse 120, respirations 28. Complains of constant pain in the left lumbar region, both spontaneous and on pressure, the pain extending to left groin and testicle, and of frequent, painful micturition. He is fairly well nourished, both skin and sclerotics slightly icteric. Physical examination of thoracic and abdominal organs, especially the loins, yields a negative result; the abdomen is soft, nothing abnormal to be observed per rectum except a cluster of hemorrhoids. *Urine.*—Clear, acid, specific gravity 1014; albumin; microscopically, pus cells and calcium oxalate crystals, epithelial cells; granular matter and hyaline casts; urea, 5 grains to ounce; daily quantity about 50 ounces. June 26, in chloroform anesthesia, no enlargement of the kidneys could be made out. The fever gradually diminished and on July 5 temperature was normal. July 6: The hemorrhoids were removed by clamp and cautery. August 10: Cystoscopy was attempted, but failed, as it was impossible to pass the instrument into the bladder. August 14: Cystoscopy revealed a normal bladder, and flakes of pus escaping from both ureters with turbid urine. August 18: *Nephrolithotomy.*—Oblique incision. Peritoneum accidentally opened and immediately reclosed by catgut suture. Kidney was felt in a very high situation, hidden under the ribs, hence the last rib had to be resected to permit access. Kidney was isolated and drawn out of the wound. It was found considerably enlarged. Pelvis palpated and was found to contain a calculus. Kidney being bisected through convexity, its pelvis was opened, from which an oxalate of lime calculus of the size of a large hazelnut was extracted. The parenchyma of the organ was much thickened and was waxy pale. A drainage tube having been inserted into the renal pelvis, the bisected kidney was reunited by seven deep catgut sutures. Then the kidney was replaced, and, the recesses of the wound having been drained by gauze wicks, the muscles were approximated by a number of button sutures, and the skin wound was closed by catgut stitches, except where, at the posterior angle, the drains emerged. Large quantities of blood-tinged urine soaked through the dressings during the first twenty-four hours following the operation. Passed 40 ounces of urine per urethram.

August 21, 22, and 23: The temperature ranged up to 103.4°, the cause of which was found to be considerable sloughing of the kidney fat. By August 25 defervescence occurred. Much urine escaping from wound; voided 40 ounces per urethram,

the latter still containing pus. September 3: Out of bed. October 3: Urinary fistula still profusely discharging. General condition excellent. October 8: Methylene blue injected into fistula appears in bladder very tardily, indicating some impediment to transmission in ureter. October 12: Cystoscopy reveals the escape of clear urine from right ureter. From the left ureter, on massage, turbid matter and one large cylindrical plug of pus was seen to emerge. Irritability of bladder, formerly very marked, has ceased entirely, so that cystoscopy could be made thoroughly and very leisurely. The renal fistula still continuing to discharge profusely, it was determined to explore the ureter for the impediment. October 23: Chloroform. First the kidney was exposed and withdrawn from the wound. Compared with its formerly intumescent condition, it appeared normal in size and color. It was not possible to pass a catheter from the pelvis into the ureter. The incision was now prolonged downward along the crest of the ilium nearly to the ramus pubis, the peritoneum was stripped up, and thus the entire ureter was exposed to view and palpation. Its appearance and situs were normal throughout, uniformly cylindrical, non-inflamed or dilated, nor could a foreign body be felt in it. Its upper, renal end, embedded in massive cicatricial matter, was dissected out, and, the kidney being replaced, the ureter was found to lie, without bend or kink, in the bottom of the extensive wound, which was drained and closed in the usual manner. A number of stitch-hole abscesses caused considerable suppuration and some fever after this operation, but as soon as cicatrization and contraction of the external wound commenced the flow of urine from the renal fistula began to slowly but steadily diminish. The urine voided from the bladder became normal in every respect, and its quantity was proportionately increased. By November 20 urine ceased to flow from the wound. The ultimate healing of the large wound was completed by January 8, 1900, when the patient was discharged cured, with traces of pus in his urine.

Remarks.—It is fair to conclude from the history that a flexure of the renal end of the ureter, which after the nephrotomy had become embedded in much cicatricial matter, had caused an incomplete closure of its lumen. It is difficult to say whether this condition was due to an incorrect posture of the kidney established at the first operation and maintained by the packings, or was produced by the deposition of cicatricial matter in the course of healing, or by both. So much seems to be evi-

dent, that freeing the upper end of the ureter from the cicatrix surrounding it, and a correct replacement of the kidney, removed the impediment and led to a closure of the renal fistula.

1900, vol. i., page 284. *Renal Calculus; Nephrolithotomy; Renewed Suppuration and Retention in Pelvis of Kidney; Re-establishment of Renal Drainage; Vaginal Uretero-lithotomy; Death.*—Lina R., housewife, 32 years old, married, had had four children. Three years ago had first attack of severe pain in right hypochondrium and loin, accompanied by vomiting and great prostration; since then about twenty in all, each needing alleviation by morphine hypodermatically administered. Was never jaundiced, urination never painful, nor did urine change its appearance during or after the attacks. It had been thick and cloudy for a long time. Present attack began two weeks ago with severe, racking pain in right hypochondrium and loin, non-radiating, with several chills and fever; vomiting. While in former attacks the pain, after having lasted for several hours, had suddenly disappeared, this time a deep aching remained constant, being from time to time augmented to paroxysmal severity. On admission, November 26, 1899, her temperature was 99.8°, pulse 120, respirations 36. Urine acid, contained albumin, abundant pus, and a few bladder epithelia; specific gravity, 1004. General condition was fair, but anemic. Thoracic and abdominal organs were normal, except that a large, smooth, exquisitely painful mass, showing slight lateral mobility and slight motion influenced by respiration, could be felt filling up the space between loin and right hypochondrium. It was not possible to differentiate this mass from the liver, either by palpation or percussion; hence on November 28, to verify the diagnosis of renal tumor, a short incision was made under the right costal arch into the peritoneal cavity, when it became evident that the tumor indeed pertained to the kidney. A very much elongated right lobe of the liver, reaching downward below the level of the umbilicus, overlapped the retroperitoneal tumor, thus impeding a clear diagnosis. This wound being immediately closed, another oblique incision was made in the loin, exposing the enlarged kidney. An incision placed through the much-thickened parenchyma of the renal convexity permitted the escape of a quantity of urinous pus, and admitted the finger into the pelvis, where numerous small, sharp calculi could be felt. These being scooped out with a spoon, two more small calculi were felt impacted in the renal aperture of the ureter, whence they also were extracted after some manipulation and with considerable difficulty. Further

exploration of the ureter had to be abstained from, as the profuse bleeding of the renal parenchyma had much weakened the patient. Drainage of pelvis, partial suture of wound. The operation was followed by a profuse urinous discharge from the wound, and by fever, which remained constant, though mostly moderate, rising, however, at irregular intervals, especially evenings, to 104°. The urine voided from the bladder continued to contain pus, was acid, free from renal elements, its daily quantity varying between 20 and 40 ounces. A rather sharp bronchitis also tended to impair the patient's general condition, whose face displayed a feeble, suffering expression. Gradually the urinous discharge from the wound had ceased, the size of the renal tumor had markedly diminished, and on January 3, 1900, at her own request, the patient was discharged with a renal fistula, with directions to present herself again in a week. January 14 she was readmitted. The sinus had almost closed; the tumor had assumed its original size and was again very painful. Though the temperature appeared normal, it was evident that the patient was suffering from the toxic effects of retention. Her urine was scanty, acid, specific gravity 1006, contained albumin, much pus, no casts. January 15: Reincision of pelvis of kidney, permitting the escape of a few ounces of ammoniacal, putrid, and purulent urine. Tube drainage. After drainage had been re-established, the patient's condition did not improve as much as expected, and she continued to complain of severe attacks of pain radiating from the right kidney to the bladder. The large quantity of urine voided by the incised kidney justified the assumption that the scanty and purulent urine passed per urethram came from the opposite, left kidney, which consideration rendered the prognosis extremely grave and doubtful. Measures were adopted to improve the general condition by roborant medication and methodical feeding, resulting by February 18 in some gain in body weight and a slightly improved quality of pulse. The abundant secretion derived from the right kidney proved: *first*, that its functional value was still considerable, possibly larger than that of its mate; and, *secondly*, that an impediment, probably one or more calculi, obstructed the lumen of its ureter. On the whole, the patient was evidently losing ground, and the main cause of this was sought in the severe attacks of cutting pain felt by her in and along the right ureter, which required increasing doses of morphine. It was then decided to make an attempt at disembarrassing the ureter. On February 19 chloroform was administered, this being replaced by ether towards the end of the operation. Immediately an intravenous saline infusion of 1,000 c.c. was made, whereupon both the rate

of the pulse was reduced from 100 to 85 and its quality markedly improved. Through the scar an incision was made, and through this aperture the kidney was developed and extracted. It was still very large. The renal pelvis and upper portion of the ureter were now exposed, and a ureteral catheter was passed through the renal wound into the latter, where, about midway, it was arrested. To enable us to palpate the lower half of the ureter, the patient was brought into an exaggerated lithotomy position, in which the right index was placed against the right side of the vaginal fornix while the left hand was stroking the abdominal wall downward along the course of the right ureter. When this manipulation had been performed several times, suddenly a small, hard foreign body could be felt through the vaginal fornix, evidently a calculus coaxed down by the manipulations. To prevent an escape of the calculus, the surgeon's left hand was now replaced by the fingers of an assistant, and an incision was carried down upon the stone through the vaginal vault, as recommended and practised by Howard Kelly. A long and somewhat narrow vagina rendered this and the subsequent extraction of the calculus extremely difficult. It was also found that a considerable depth of tissue intervened between the vaginal vault and the ureter. The incision was held patent by two bullet forceps, then the slit in the ureter was sufficiently elongated parallel to its axis to permit the introduction of a slender dressing forceps, which was made to grasp the stone, apparently spindle-shaped, about 1 cm. long, and one-quarter of a centimetre in diameter. Under the grasp of the forceps it crumbled and was scooped out in fragments, their yellow color denoting a uric acid composition. Though a silver probe passed up towards the kidney and down into the bladder met with no resistance, some doubt existed whether some fragments had not slipped into the upper portion of the ureter. But now, one hour after the beginning of the operation, the patient's condition became so bad that, in addition to hypodermatic stimulation, another saline infusion of 500 c. c. was made, after which her pulse rallied. By renewed massage several more fragments were made to appear in the vaginal wound and were removed. The ureter was now flushed, the fluid freely escaping through the renal incision. (The findings of the autopsy showed, however, that there were still some of the fragments remaining in the ureter.) The vagino-ureteral wound was drained by catheter and iodoform gauze packing, the lumbar incision in the usual manner, and a catheter was placed in the bladder, from which there escaped three ounces of a very thick, turbid, pea-soup-like material, derived evidently from the left kidney, and composed mainly

of pus (one-half of its volume), numerous red blood cells, granular detritus, some urate crystals, a cylindrical blood clot, and urine of alkaline reaction. The patient left the table in a feeble condition, her pulse 140, respiration 36, the temperature 102.8°. During the night, at varying intervals, energetic stimulation was required to combat collapse. February 20: The temperature, 101.6° in the morning, rose to 104.8° by 1 P.M. Great restlessness, retching, some vomiting, and great weakness, for which, at 7 P.M., another saline infusion was made. Ureteral drainage: 1 ounce, highly colored urine. From the bladder 43 ounces of cloudy, acid urine were drawn, specific gravity 1010, containing albumin, much pus, though less than before the operation. Took very little nourishment. February 21: Very restless, coughing, nauseated but not vomiting. Pulse 138, respirations 30 to 36, temperature 102.8°. This condition remained stationary, with slight variations, the patient not rallying in a satisfactory manner, though abundant urine of low specific gravity, up to 58 and 62 ounces per day, was voided, especially after the repeated subcutaneous saline infusions, by which undoubtedly life was somewhat prolonged. February 24: There was a short, seeming improvement, patient asked for and took nourishment, the temperature falling for a short time to 99°. Urine 36 ounces. February 25: Skin cold and clammy, pulse imperceptible. Died at 9.45 A.M.

Autopsy.—Wound in right lumbar region, leading to small incision into kidney for drainage of pelvis. Dressings stained with pus.

Right Kidney.—Is 13 x 8 cm. The pelvis is somewhat dilated, and in some of the calices are small fragments of calculi of white color. Kidney shows marked pyelonephritis, with marked degeneration of the cortex. In ureter, 27 cm. from pelvis of kidney, is an incision about 1 cm. long; ureter at this point shows marked reddening of mucosa; just above this there is moderate dilatation of ureter, containing two small calculi; is anemic over a distance of one-half centimetre. At lower part of this area, at the upper end of incision, are two dark green areas (beginning necrosis). Above this anemic area, ureter is still somewhat dilated, becoming normal in character about 6 cm. from this area. There is acute catarrhal change above the anemic area.

Left Kidney.—Is 15 x 9 cm. Pelvis and calices are much dilated and entirely filled with very large, ramifying calculus, which in section is white, soft, and covered with a thin black layer. Very little of the parenchyma is left. In one place this has almost entirely disappeared over an area of 11 x 5 cm. The remaining parenchyma shows marked degeneration. Pelvis also contains a moderate amount of white pus.

Capsules of kidneys not adherent.

Liver.—Congested and fatty.

Spleen.—Enlarged, soft.

Kidney. Micro.—Pyelonephritis, chronic interstitial nephritis, hyaline degeneration, congestion and hemorrhage.

1900, vol. i., page 956. *Multiple Fibromata of the Right Kidney (Latent Tuberculosis?); Nephrectomy; Cure.*—Edward P. S., 50 years old, merchant, was admitted May 2, 1900, with the following previous history: No tuberculosis in the family, had no gonorrhea, had pneumonia twelve years ago. About four years ago, without a known cause, commenced to suffer from painful and very frequent micturition, lasting for several days, and recurring about every four months. In November, 1899, an especially severe attack came on, compelling the patient to remain in bed. Had then several severe chills, with high fever, acute pain in the right loin, very painful, scalding urination, and for two weeks passed bloody, dusky urine. The pain radiated from the right loin into the glans penis and rectum. A free interval of two weeks was followed by another such attack, lasting again about two weeks. After this he was examined by Dr. Swinburne at New York, who found in the urine abundant tubercle bacilli. Was cystoscoped by Dr. Alexander, who found a normal bladder, and gained, by catheterism, from the left ureter a sufficient quantity of absolutely normal urine. The right ureter could not be entered; to its vicinity there was found attached a plug of purulent-looking mucus. The fluid in the bladder became so obscured that cystoscopy had to be discontinued. The cystoscopy was followed by a smart attack of orchitis, which ended by the spontaneous discharge of a scrotal abscess two weeks after the examination. During the hematuria there was marked loss of weight, but during the last three months the loss was recovered. On admission the patient still complained of somewhat frequent urination and slight pain at the end of the penis, but the lumbar pain had disappeared. Pulse, temperature, and respiration normal; patient, a man of slim build, is in a fairly good general condition. Thoracic and abdominal organs normal. Urine clear, acid, specific gravity 1015, containing traces of albumin, no sugar, microscopically pus cells and bacteria. Daily and repeated search for tubercle bacilli yielded invariably negative results. Pressure pain in loin absent. The patient suffered from an intense dread of renal tuberculosis, and urged an exploration, to which consent was finally given. Accordingly, on May 7, under chloroform, the right kidney was exposed and developed through the usual oblique incision. Having been extracted from the wound, its size and appearance were found normal.

The vessels having been isolated and digitally compressed, the kidney was bisected. Its glandular portions and the calices and pelvis appeared normal, except that in the cut surfaces of the cortex four hard, whitish-yellow nodules, the size of a hempseed, were found, closely resembling miliary tubercle. No scars could be found in calices or the pelvis. Now the vessels were separately tied off and severed; then the ureter was isolated down to the level of the pubic bone by the insertion of the hand from above, tied, and cut off. The wound was drained by a gauze wick inserted into its posterior angle, and was closed by button sutures. The healing of the wound was rapid and uneventful. The urine passed by urethra contained, for a few days, traces of albumin and some hyaline and granular casts, but was abundant, and the patient was discharged cured on May 23.

A very careful examination of the kidney revealed a chronic interstitial nephritis with adenomatous changes of the parenchyma. The nodules noted at the operation, of which more were found in various sections, proved to be composed of fibrous, probably cicatricial tissue, evidently the vestiges of a process that had reached its termination. Nothing characteristic of tubercle and no bacilli were found. Unfortunately the specimen had been placed in alcohol immediately after its removal, and no inoculation experiments could be made. The question whether we had to deal with a suppurative or originally tuberculous nephritis had to remain undetermined.

1900, vol. i., page 714. *Dystopia Renalis with Nephrolithiasis; Exploratory Laparo-nephrotomy; Transperitoneal Nephrectomy; Death.*—Philipp E., tailor, 22 years old, had been suffering, during the past four years, from many attacks of severe pain seated in the right side of the hypogastrium, extending into the right iliac fossa, lasting about twenty-four hours, during which he vomited. The last attack, also accompanied by repeated vomitus, began twenty-four hours before admission. Micturition somewhat frequent, but not painful. On admission, April 19, 1900, there were found: a moderately well-nourished body, thoracic organs normal; the abdominal organs apparently normal, except that there could be felt just below the umbilicus, and slightly to its right side, a seemingly fusiform, hard and tender, non-movable body, the lower portions of which could not, during bimanual rectal palpation, be brought within the grasp of the fingers. In the loins the kidneys could not be palpated. The mass was not influenced by respiration, and it was not possible to determine what relations it held with the abdominal wall. The urine was clear, acid, its specific gravity 1030, containing traces of albumin, pus cells,

red blood cells, bladder epithelia, and some mucus. Temperature was 100.8°. April 23: A cystoscopic inspection showed a trabeculated but otherwise normal bladder, with normal-looking ureteral apertures. With these data a satisfactory diagnosis of the tumor was not possible. The symptoms pointed to nephritis, but the presence of a patent urachus, in open communication with the bladder, was also thought of, though no signs of such an aperture could be found by means of the cystoscope. Moderate fever, but especially intense paroxysmal pain in the tumor, remaining unabated, it was determined to make an exploration. Accordingly, on April 23 the abdomen was entered through a median incision placed below the umbilicus, when it became clear that the tumor was retroperitoneal, closely and immovably adherent to the promontory. Its puncture yielded a small quantity of bloody serum. The peritoneum over the tumor was incised and stripped off for a distance, this causing rather profuse hemorrhage, and, as it was not known what this evidently glandular organ represented, its removal was thought to be inadvisable. A wedge-shaped piece, however, was cut out of it for microscopical examination, and, the smart hemorrhage having been controlled by a number of parenchymatous sutures, the peritoneum was also closed over the mass, and finally the incision through the abdominal wall was united. There was a slight rise of temperature (101.4°) and some vomiting following the operation, but the wounds healed by the first intention. Some blood appeared in the urine also, and made it probable that the tumor was a kidney. This thought was fully confirmed by the pathologist, who reported that the removed specimen consisted of renal tissue in a state of chronic interstitial nephritis. The urine continued to exhibit albumin and pus cells, and urination remained painful, but, the patient declining further operative procedures, he was discharged on May 17. On June 19 he was readmitted, stating that he had had, since his discharge, three severe attacks of pain and vomiting together with fever, each attack lasting several days. Temperature 102.6°, pulse 116, respirations 26. Marked prostration and exquisite tenderness of the presacral tumor, which had much increased in size. On the evening of June 19 the temperature rose to 105°, the pulse rate to 130, the urine was heavily loaded with pus, and, as the pain was increasing, it was determined to give operative relief.

Operation at 8:30 P.M.; chloroform anesthesia. Abdomen opened through scar of previous incision. A few adhesions of small intestines to the parietal peritoneum were divided by blunt dissection, and the intestines packed away with gauze compresses. The retroperitoneal tumor representing the kid-

ney was thus isolated and its limits defined. It lay across the front of vertebræ, reaching upward to the upper border of the fourth lumbar vertebra, and downward into the concavity of the sacrum to about its middle. Its most prominent point lay about opposite the promontory of the sacrum. Laterally it reached much further to the right than to the left side. The posterior parietal peritoneum was divided and the tumor exposed. Its left margin was convex, its right margin concave. The right margin was occupied by the pelvis of the organ, and in the latter could be distinctly palpated a stone. The pelvis was incised and the stone removed. The pelvis was inspected and found to be considerably injected and covered by mucus and pus. The pelvis of the kidney was temporarily packed with gauze, and the abdomen examined to ascertain whether a second kidney was present. It was found that a normally placed kidney, of about the normal size, was in the left loin. As it was impossible to push the sacral organ upward into the right loin, and as a transperitoneal drainage of an infected kidney carried with it the great danger of establishing a septic peritonitis, a nephrectomy was decided upon. This conclusion was further strengthened by the extensive disease of the sacral organ and the excruciating pain it was causing the patient. Transperitoneal nephrectomy was therefore proceeded with. The kidney was rapidly stripped out of its fatty capsule, several large vessels which passed from the capsule to the cortex being clamped and divided. The kidney itself was found to be lying as though it had turned around a horizontal axis passing through its hilum. Thus, the pelvis lay on the outer side of the organ. The ureter lay most anteriorly at the renal hilum. The kidney lay on its own blood vessels, which passed from the hilum downwards and inwards. The ureter lay in front of the kidney. So that the kidney was enclosed by its own vessels behind and its ureter in front, and this enclosure was a fairly tight one. The ureter was divided and ligated distally, the pedicle of the kidney isolated, and a rubber ligature placed around it and the organ removed. The retroparietal peritoneum was sutured to the edges of the anterior incision, proper drainage for the kidney stump provided, and the anterior incision partly closed.

Pathologist's Report on Excised Kidney.—The organ is of a truncated conical shape, measuring 10½ cm. at its base, and 10 cm. in height. Its surface is crossed by several furrows from 2 to 4 mm. in depth. On the anterior aspect, in its upper half, is a softened, necrotic area extending into the substance of the organ for a distance of several millimetres. The pelvis occupies the anterior and outer aspects of the organ, and lies nearer

the upper than the lower pole. The surface of its lining epithelium is covered by a thin, purulent fluid. Within the cavity of the pelvis was a stone about $2\frac{1}{2}$ cm. in length and $1\frac{1}{2}$ cm. in width.

Microscopical Diagnosis.—Pyelonephritis; surgical kidney. Microscopical diagnosis of left kidney, removed at autopsy: Chronic pyelonephritis.

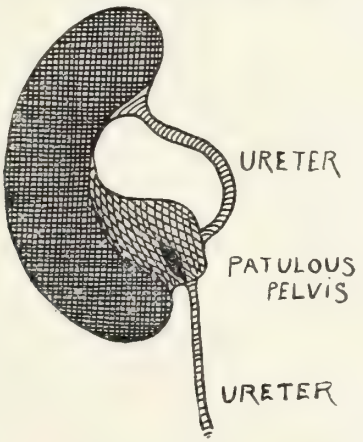
Immediately after the operation the temperature fell to 100.6°, and did not rise higher than 101.4° during the first twenty-four hours. Passed voluntarily 11 ounces of urine five hours after the operation, which was acid, 1040, containing much albumin, many hyaline and granular casts, a few red blood corpuscles, and very much pus. Passed 37 ounces urine the first twenty-four hours. Patient hiccoughed and vomited, hence nourishment was withheld. The pulse gradually began to fail, in spite of energetic stimulation, though the moderate tympany was easily relieved by high enemata. On June 21 lavage of stomach was employed on account of vomiting. Temperature reached 102°, pulse very soft and rapid. Passed 26 ounces of turbid urine. June 22: Passed 38 ounces of urine loaded with pus. General condition failing; vomited four times. Nutritive enemata. June 23: Failing; vomiting unabated, facies hippocratica, marked icterus; passed 28 ounces of urine full of pus. Temperature 103.2°, pulse scarcely perceptible, respirations 20. Temperature rose to 105.2° just before death, which occurred at 8:30 A.M. on June 24, belly remaining soft to the end.

The consent of the family to a complete autopsy could not be secured, hence only the following facts could be ascertained through the existing wound: Abdominal wound in the median line, as far as sutured, closed by adhesion. The coils of intestine adjoining the drainage slightly injected; general peritoneal cavity well walled off by recent adhesions; no peritonitis. Left kidney normally situated, somewhat large, markedly congested, showing microscopically signs of chronic nephritis, acute degeneration, congestion and interstitial hemorrhage. Spleen slightly enlarged.

1900, vol. i., page 660. *Periodical Hydronephrosis of Right Side; Atrophic Ureter; Ureteroplasty; Nephrectomy; Incision of Periureteral Abscess; Death.*—Isidor B., 29 years old, knitter, began, sixteen months ago, to complain of severe pains in the right loin, which returned from time to time in the form of acute paroxysms lasting several days, to disappear as suddenly as they had come. No fever or vomiting during these attacks: had never been jaundiced. Attacks were getting more and more frequent, occurring lately every four weeks. Never noticed

blood in urine, nor painful or frequent urination, nor increase in amount of water at the conclusion of attacks, but there is now a constant pain and fulness in right loin. Lost about ten pounds weight in the past year. *Admission* January 5, 1900: A thin, small, and emaciated body, marked retraction above both clavicles, dulness over right apex; lungs otherwise normal; heart, liver, spleen normal; abdomen soft, moderately distended; in right loin a somewhat tender, rather tense tumor could be felt, from which no fluctuation could be elicited: it gave the impression of being the lower pole of an enlarged kidney. Palpation per rectum negative. Urine normal in every way, containing no albumin, sugar, pus or blood, casts or crystals. Respiration, pulse, and temperature normal. Daily quantity of urine varying between 24 and 40 ounces. *Diagnosis:* Periodical hydronephrosis of right kidney. January 15: Ureteroplasty. Ether anesthesia. By the usual oblique incision the kidney was exposed and developed. It was a somewhat slender and long organ. Its pelvis was baggy and evidently dilated. After the kidney had been withdrawn from the wound, the ureter was exposed at its point of emergence from the renal pelvis, and was found to be exceedingly slender, almost infantile in size. The pelvis being incised for the distance of an inch near the ureter, the orifice of the latter was sought for and found after much difficulty, it being so small that a fine silver probe could be passed through only after much coaxing. The pelvic incision was now continued down through the orifice of the ureter for one-third of an inch, this longitudinal wound being transversely united by three fine catgut sutures according to Fenger's procedure. A drain being inserted down to the plastic suture, the kidney was replaced and the external wound closed in the usual manner. The extremely small dimensions of the ureter rendered the suture very difficult, and made the success of the plastic so doubtful that the idea was considered whether it would not be wiser to remove at once the kidney. But we decided to abide the issue of the plastic. The patient did very well after the operation, his temperature remaining normal, bowels moving without difficulty, sufficient quantities of normal urine being voided per urethram. The dressings were changed daily, and showed no signs of leakage up to January 19, when they were found soaked with urine. Directly after this soiling of the wound, fever set in, rising occasionally as high as 103°. January 21: The button sutures were removed, and thereby outlet was given to some pus collected around the upper part of the ureter. After this the fever disappeared, but the patient began to complain of painful and frequent urination, urine containing traces of albumin, some

pus and hyaline casts. As most of the urine secreted by the right kidney escaped through the wound, the fear seemed justified that the other kidney also was diseased. January 28: Some milk was injected into the pelvis of the right kidney. No traces of this appeared at any time in the water voided from the bladder. Patient's general condition had improved so much by February 14 that on February 15 *nephrectomy* was done. The development of the strongly adherent kidney was somewhat difficult, but succeeded well. In liberating the vessels and the ureter, it was found that the kidney possessed two pelves and two ureters, the ureter coming from the upper portion of the kidney inosculating in the lower, much-dilated pelvis, upon which and the lower ureter the plastic operation had been done. The ureteral orifice was found here completely obliterated, and



pelvic portion of the incision patulous. The kidney was enlarged, congested, both pelves hyperemic, and later was found microscopically the seat of chronic interstitial nephritis. The normal renal vessels and the ureters having been separately tied off, the kidney was removed, the wound drained and partially closed. The patient rallied slowly and imperfectly after the operation, which had been singularly unbloody, and required very energetic stimulation. His temperature rose again to 102.6°, the urine voided by the bladder amounting to 22 ounces, it being acid, specific gravity 1020, containing albumin, numerous pus cells, no blood, 4 grains of urea to the ounce. February 21: Temperature normal; 32 ounces of alkaline urine, containing albumin, pus, no casts, but oxalate of lime crystals. Wound doing well. March 1: Patient much better, leaves the bed. *Urine.*—32 ounces, acid, 1020, no albumin, very few pus cells,

daily quantity 33 to 40 ounces. March 14: Gained 12 pounds in weight, wound nearly closed, there remaining only a narrow sinus leading down to stump, discharging slightly sero-pus. At own request patient was discharged, to be dressed by his family physician.

Readmitted April 20: General condition extremely poor; patient is profoundly septic, has high fever, vomits; the wound is evidently septic, discharging large quantities of ichorous pus; pulse very feeble and frequent. A resistant, painful tumor, extending from the loin downward towards the ramus pubis, can be felt; the integument edematous. Pressure over this swelling causes large quantities of pus to flow out of the wound. *Urine* very turbid, scanty, 1008, albumin, much pus, no casts. April 21: Chloroform. Scar reopened and incision carried well below anterior superior spine, through abdominal muscles and into retroperitoneal abscess, which was evacuated and drained. There was no visible communication then with the peritoneal cavity. The operation lasted only ten minutes, but caused extreme exhaustion, which was augmented by persistent vomiting. The temperature remained high, never descending below 103 F., and the pulse became constantly weaker and more rapid. The urine also became more turbid and scanty, and patient died on April 24 under the symptoms of septic peritonitis and nephritis. At the autopsy it was found that there existed an open communication of the wound with the right side of the pelvis, which was the seat of purulent peritonitis. The adjoining colon and a portion of omentum limited the site of the peritoneal infection and were covered with purulent exudate. The more distant coils were slightly injected; there was a free serous exudate in the unaffected part of the peritoneal cavity. *Spleen.*—Slightly enlarged, soft, Malpighian bodies prominent. *Liver.*—Congested and degenerated. *Left Kidney.*—Large, capsule slightly adherent; congested, granular, and degenerated; pelvis containing one calculus; ureter normal.

Remarks.—Evidently a virulent infection of the wound had occurred after the patient's discharge from the hospital, descending downward along the course of the ureter and involving the peritoneum overlying the infected space. This infection also rekindled the nephritis of the remaining kidney, handicapped by the presence of a renal calculus, undetected because it gave no palpable symptoms. In the light of the issue, it would have been wise primarily to remove the right kidney.

1900, vol. i., page 946. *Pyelonephritis; Ureteritis; Cystoscopy; Nephrotomy; Discharged Improved.*—Annie G., 26 years old, tailoress, has been suffering for five years from recurrent attacks of sharp, paroxysmal pain located in the right loin, and radiating along the ureter to the bladder, accompanied by nausea. Urination was always frequent, more so in the daytime than at night. Six months ago passed bloody urine, that is, noticed that her water was dark reddish-brown. Towards end of attack she passes large quantity of urine, after which she feels relieved. Occasional pain in left lumbar region. *On admission*, March 18, 1900, we found a thin, emaciated woman, with a poor pulse and pallid complexion. Thoracic organs normal. Lower border of right kidney easily palpable and sensitive to pressure. Left kidney cannot be felt. Abdominal organs normal, right iliac fossa presenting nothing unusual. Feet somewhat edematous. *Urine.*—Cloudy, specific gravity 1025, no albumin or sugar, considerable pus and some bladder epithelia, no tubercle bacilli, quantity sufficient. Pulse 86, temperature 99.4°, respirations 22. March 19: Cystoscopy. Trigonum congested, ureteral orifices normal-looking. Left ureter discharging limpid urine; on massaging right kidney and ureter, masses of reddish-brown fluid are seen to escape from right ureter. March 20: Pain in bladder more pronounced. Urine contains much blood. March 22: Urine still bloody, free from pus cells or casts. March 27: Urine still smoky, now containing a trace of albumin and some pus cells, no tubercle bacilli, quantity 34 ounces. The pain in loin and along ureter undiminished. Diagnosis of pyelonephritis of the right kidney, with possible inflammation of the ureter, was made. April 6: *Nephrotomy.* Chloroform. Oblique incision; kidney easily developed and withdrawn from wound. Was normal in size and appearance, though somewhat small. While the renal vessels were digitally compressed the kidney was bisected transversely to the longitudinal axis. The capsule was very loosely adherent, the cortex apparently of normal color, though somewhat thickened and brittle; the pelvis containing a small quantity of turbid, bloody serum, its lining hyperemic, no calculus or ulcer. A ureteral catheter entered the ureter and was passed down to the bladder without difficulty. A drainage tube being inserted into the pelvis, the bisected kidney was reunited by a number of deep catgut sutures. Hemorrhage trifling. Then the kidney was replaced and most of the external wound was sutured as usual. Blood appeared in the urine and remained in evidence for a number of days after the operation. Quantity of urine always abundant. Afebrile course of healing. April 12: Tube withdrawn. Wound healed rapidly, but patient con-

tinued to complain of pain in the kidney and ureter as before. Urine containing a few pus cells, otherwise normal. General condition much improved, marked gain in weight. May 29: Discharged improved.

1900, vol. ii., page 562. *Ascending Pyonephrosis; Nephrotomy; Cystoscopy; Nephrectomy; Cure.*—Herman I., clerk, 22 years old, contracted sixteen weeks ago a sharp gonorrhea, which, about a week after its inception, extended to the bladder, causing very painful and very frequent micturition. Gradually his left loin became very painful, and high fever with chills and sweats set in. The urine became loaded with pus. In another hospital the left kidney yielded pus by aspiration and was incised and drained. Since then he regained his flesh and strength to a certain extent, but the renal fistula annoyed him very much. *Admitted* September 11, 1900: General condition good, organs of chest and abdomen normal. Both lumbar regions somewhat tender to palpation; left kidney not to be felt, lower pole of right kidney palpable. In left lumbar region a scar, within which there is a sinus discharging purulent serum. Temperature in the morning 100.8°, at night 103.2°. September 12: Gleet present. A considerable quantity of urinous pus had escaped from the sinus during the night. Methylene blue injected into sinus does not appear in urine voided by bladder. *Urine.*—Acid, specific gravity 1009, marked albumin, no sugar, no casts, plenty of pus. September 18: Cystoscopy. Much pus seen flowing out of left ureter. September 18: Complains of pain in right loin, radiating to right shoulder. Up to September 26 occasional fever was observed, but otherwise condition remained unchanged. September 27: *Nephrectomy.* Chloroform. After the development and incision of the kidney, a catheter was passed without difficulty down into the bladder. Ureter cut off about two inches below level of iliac crest. Pedicle of kidney secured with elastic ligature. Wound closed and dressed in usual manner. Removed kidney was a large, thin-walled sac with smooth lining, in which there were a number of areas containing calcareous deposits. Hardly any kidney substance recognizable. The course of convalescence was uneventful and entirely afebrile, the patient passing very large quantities of urine, varying between 63 and 75 ounces per day. In the beginning the urine still contained much pus, but by October 14 the pus began markedly to diminish. The urine was centrifuged on this day, and was found to contain (Gram staining) streptococci and staphylococci, no diplococci. General condition improved rapidly. October 27: The ligature came off. October 29: Urine clear, acid, 1014, trace of albumin, very few pus cells, no kidney elements. November 4: Discharged cured.

Remarks.—Evidently an infection, ascending from the periphery to the centre, had affected both kidneys. The left one was destroyed by the suppuration; the right kidney showed traces of a chronic inflammation for a very long time, but may ultimately recover.

1900, vol. i., page 853. *Calculous Pyonephrosis; Perinephritic Abscess; Incision and Drainage; Nephrectomy; Fecal Fistula; Sepsis; Death.*—Rosie B., housewife, 37 years old, multipara. Five weeks ago felt pains in right, later on in left loin, this latter pain remaining until now, and is relieved by flexion of the left thigh. Pain is of varying intensity, but constant. Vomits easily, is constipated. Urine scanty, becoming extremely so during exacerbations of pain. Lost considerable flesh. *Admitted* February 13, 1900: General condition poor, emaciated, anemic, tongue coated; bronchial catarrh present; heart, liver, spleen normal. Abdomen tympanitic. In the left lumbar region a large, very tender, palpable and visible tumor, abdominal wall over it very rigid. Pelvic organs negative; legs edematous. Pulse 112, respirations 28, temperature 102.4°, rising to 103.4° in the evening. Urine loaded with pus. February 15: Lumbar incision evacuated a large quantity of foul pus from a retroperitoneal cavity extending well down into the iliac fossa. Drainage. The fever became somewhat more moderate after this, but never disappeared; the pus remained very offensive, often becoming fecal in odor and character. Blood appeared in urine, but soon disappeared from it; the urine, however, continued to contain pus, albumin, daily quantity about 35 ounces. February 22: Chill, with temperature 105.4°, the cause of which was a catarrhal pneumonia that had invaded the lower lobe of lung of the right side. By March 6 this had abated, but the cavity was still discharging large quantities of foul, feculent-smelling pus, and the urine continued to be purulent. Patient was evidently suffering from a septic condition, due to the presence of remnants of a disorganized kidney, probably complicated by a colic fistula, and it was evident that her salvation was only possible by the removal of the kidney and the conversion of the irregular and labyrinthine wound into a comparatively simple cavity. *Hence, on March 9, nephrectomy was made.* Chloroform being administered, the left loin was opened by a free oblique incision. An hour-glass-shaped cavity was entered, the narrow neck corresponding to a defect in the lumbar fascia, which also was freely divided. In the upper angle of this cavity, well under the costal border, an irregular, closely adherent, and extremely dense cicatricial mass was

identified as the remnant of the kidney, containing, on section, here and there rudiments of renal tissue. From the centre of this mass a renal calculus of the size and shape of a pigeon's egg was extracted, together with a large quantity of chalky, soft material. To reach the upper limits of this mass, portions of the twelfth and eleventh ribs had to be resected. In similar cases, where the individuality of the renal body is fairly well preserved, its removal can be much facilitated by stripping the glandular part of the kidney out of its proper capsule and securing the pedicle by an elastic mass ligature before ablation. This expedient saves much time and blood, obviates injuries to pleura or peritoneum by sacrificing the minor advantages of a separate ligature of renal vessels and ureter. In this case the kidney had lost its individuality and had become an inseparable part of the cicatricial deposit, of incredible density, closely adherent to pleura and peritoneum. Hence it had to be removed by sharp dissection by means of scalpel and scissors. Previous to this the peritoneal reflexion was well exposed, likewise that of the pleura, and by great care injury to both was avoided. As soon as a practicable pedicle had been formed, this was secured by an elastic ligature and the mass was cut off. A communication with the intestine could not be found. The cavity was packed and the anterior angle of the large wound was closed by a few button sutures passed through all the layers of the abdominal wall. Towards the end of the severe operation a saline infusion of 1,000 grammes had to be made. March 10: Patient rallied well and the temperature dropped to 98.6°. The dressings were soaked by an enormous quantity of extremely fetid, turbid, feculent material. *Urine.*—First specimen after operation 3 ounces, yellowish brown and extremely fetid, containing blood and pus, granular casts, and very much albumin. March 11: Fecal discharge puts beyond doubt a fecal fistula. March 25: Ligature came away; though there is no fever, patient visibly growing weaker, urine containing much albumin, red blood cells, and pus; patient has an aversion to every kind of nourishment and is distinctly septic. March 29: A marked chill with a rise of temperature to 104.2°. March 30: Temperature 99°. During April the wound continued to discharge feces and pus, and showed no tendency whatever to contract. Alternations of severe rigor and high fever, with normal and subnormal temperatures, the development of bedsores, an increasing aversion to food, and deepening emaciation, finally led to patient's total exhaustion, which caused her death on May 6.

Autopsy, May 6, 1900.—Incision in left lumbar region, just below free border, leading to a cavity whose relations are difficult correctly to ascertain, because of adhesions and extensive inflammatory products present.

Attached to upper edge of incision is a coil of intestine (descending colon), in which there is a large opening from which feces freely escape.

Spleen.—Much enlarged, firm, on cross-section beefy in color. Amyloid degeneration of Malphigian bodies. Lower pole of spleen covered by adhesions which form the upper wall of cavity above mentioned.

Veins in *omentum* very large and the lumina are plugged by thrombi which are firm and partly decolorized.

Kidney.—Right: Somewhat enlarged, capsule adherent. Congestion of veins on surface. Cuts firm. Markings indistinct. Cut surface granular.

Heart.—Brown atrophy; muscle looks cloudy. Right auricle and ventricle slightly dilated. Left ventricle hypertrophied. Valves negative. Moderate atheroma of aorta.

Lungs.—Left: Advanced pulmonary tuberculosis, cavity formation.

1900, vol. ii., page 186. *Calculous Pyonephrosis; Nephrotomy; Nephrectomy; Uremia; Death.*—Sarah A., housewife, 45 years old. For five years frequent, painful urination. Two months ago noticed large tumor in right loin and hypochondrium. Loss of flesh. *On admission,* June 20, 1900, there were found: General condition somewhat emaciated, temperature 101°; organs of chest and abdomen normal, except that there was in the right loin a large, somewhat nodular tumor extending down to within two inches of Poupart's ligament, tender to touch, scarcely movable, and little influenced by respiration. June 20: The inflated colon could be seen lying in front and to the inner side of the tumor. June 22: *Cystoscopy.* Bladder of normal appearance; from right ureteral orifice pus is seen to escape. *Urine.*—Alkaline, containing a large quantity of sediment composed of muco-pus and a few red blood cells. Filtered, it contained much albumin, a few triple phosphate crystals, no casts, no tubercle bacilli. June 25: *Nephrotomy.* Ether. König's incision. Aspiration yielding pus, the tumor was incised and a large quantity of pus evacuated. Tumor still remaining very large, two more abscesses were opened through the first incision under the guidance of the finger. A large calculus was extracted from the pelvis. Edges of pus sac were sutured to the skin, the extrarenal spaces packed with gauze strips, two drainage tubes inserted in the renal pelvis, and the wound dressed. Towards the end of the operation the pulse became imperceptible, wherefore a saline venous infusion was made. June 27: Patient had rallied slowly, passing large quantities of clear, acid urine. Moderate fever, but pulse still very rapid. Very profuse discharge, requiring frequent

change of dressings. June 28: Urine somewhat turbid, containing pus, no casts; the general condition somewhat improved. July 1: Urine 25 ounces, very turbid, alkaline, containing pus, triple phosphates, and many bacteria. The discharge from the incised sac and from the rest of the wound continued to be excessively copious, and, though there was only moderate fever, by July 28 it became evident that patient's strength was failing. The urine also continued to give signs of an involvement of the opposite kidney. Although the patient's general condition was very poor, her only hope lay in getting rid of the ill-drained pus sac, which evidently was a continuous source of infection. August 3: *Nephrectomy.* Chloroform. The still very massive tumor was exposed through an enlargement of the primary incision. A number of good-sized calculi could be felt in the totally degenerated organ, which, on account of considerable and very dense adhesions, could be developed only with much difficulty. The bleeding was very moderate. The pedicle was secured by an elastic mass ligature and the tumor cut away. The wound was packed with gauze and its angles closed by a few button sutures. The patient bore the operation very badly. Immediately after its completion the temperature began to rise, reaching 104° by midnight. With this an excessive restlessness developed. August 4: Patient did not respond to the ordinary forms of stimulation, and received an intravenous saline infusion. Vomited black materia and frequently. Passed only 13 ounces of a very thick and turbid urine since the operation. Temperature 105.6°. Died at midnight.

1900, vol. ii., page 121. *Tuberculosis of Right Kidney; Nephrectomy; Cure.*—Morris N., tailor, 36 years old, had had gonorrhea 15 years ago, 13 years ago smallpox. Since two years urination had become gradually very frequent and painful, the act of micturition ending by the discharge of a few drops of blood. Had no hematuria. Had to rise from bed every hour to pass water. Since five weeks urine very turbid and foul. Since then felt a dull, constant pain in right loin, which does not radiate, but is much aggravated by exertion. No chills or fever have been observed. *Admitted* June 6, 1900: General condition very good. Very muscular body. *Lungs, heart, liver, and spleen* normal. In the right loin the kidney is palpable and tender on pressure; left kidney cannot be felt. Pulse, respiration, and temperature normal. *Urine.*—Very turbid, acid, containing large quantities of pus and enough blood to be tinged by it, albumin, no casts, many bacteria, no tubercle bacilli. The diagnosis of pyonephrosis of the right kidney was made, and nephrotomy, eventually nephrectomy,

was decided upon. June 8: *Nephrectomy.* Chloroform. Oblique lumbar incision. The reflexion of the peritoneum was identified, during which manipulation the peritoneum was injured and immediately closed by suture. The kidney was found rather small, and in several places gave the feeling of fluctuation. Puncture yielding pus, it became evident that the organ was totally disorganized, wherefore its removal was thought proper. The situation of the kidney was very high, and, its immobility pointing to a very short pedicle, the capsule was split along the convexity and the gland was shelled out down to the pelvis. After securing the pedicle with an elastic ligature, the mass was cut away. Gauze drainage of cavity and closure of anterior angle of wound by button sutures.

The kidney was small, much congested, the markings indistinct; the kidney the seat of four abscesses, the largest one showing a necrosed lining. The creamy pus was swarming with tubercle bacilli.

The patient bore the operation excellently, and the course of healing was uneventful and free from fever. June 9: The urine abundant and much clearer. June 17: Urine normal, containing very few pus cells. July 3: Urine cloudy, alkaline, contains albumin, pus, and much granular material. July 10: Urine again normal. Ligature loose, was removed. August 11: Wound nearly healed. Urine normal. Discharged cured.

1899, vol. i., page 260. *Tuberculosis of Ureter; Ureterectomy; Cure.*—Henrietta K., domestic, 31 years old, had in 1894 nephrorrhaphy done on right kidney. In 1895 this kidney was removed at the German Hospital for tuberculosis (as ascertained from records there). Was perfectly well since then until five days before admission, when she was suddenly seized with intense lumbar pain radiating to bladder. Urination became frequent and painful and water turbid. Felt continually chilly; no vomiting. *On admission,* October 25, 1899, pulse 118, respirations 20, temperature 102.6°. *Urine.*—Acid, containing albumin, hyaline and coarsely granular casts, no blood. General condition poor. *Lungs.*—Retraction above both clavicles; anteriorly and posteriorly over apices dulness, with increased fremitus and breathing in infraclavicular regions, and crepitant râles. Abdominal organs normal, except that over the right lumbar and iliac regions the muscles are very rigid. Beneath them a hard resistance can be felt, extending downward towards the ramus pubis, this region being very tender to touch and yielding a dull percussion sound. October 26: Temperature 104.2° at 8 P.M. *Diagnosis.*—Periureteral abscess. October 27: *Incision and Drainage.* Aspiration of the tumor yielding pus, the patient was chloroformed and an oblique in-

cision was made through the old scar. The peritoneum being exposed, it was stripped up from the tumor, which then was incised. About one-half ounce of thick pus escaped. Drainage. After this operation there still were moderate rises of the evening temperature, and the dense tumor remained of the same size and very tender. November 9: Methylene blue being injected into the fistula, it immediately appeared in the bladder. From this it was concluded that we had to deal with an affection of the right ureter, probably tuberculosis. The pain, swelling, and discharge still continuing in spite of an appropriate local treatment, it was decided to remove the ureter. December 15: *Ureterectomy*. Chloroform. Beginning from lumbar scar, an incision six inches long was made downward and forward, parallel with the iliac crest and 1½ inches distant from it. Then, with some difficulty, the upper end of the ureter was found embedded in masses of dense cicatricial tissue. The peritoneum was stripped off well down into the pelvis, and the ureter, very hard and of the thickness of a little finger, was raised out of its bed. Then the peritoneum was again stripped up close to the vesical inosculation of the ureter, this part of the procedure being very difficult, both on account of the depth of the wound and because of the close adherence of the parts. Here the peritoneum was twice perforated. The upper rent was closed by suture, but the lower one had to be closed with a tampon of iodoform gauze. As it seemed desirable to remove the entire ureter, the patient was brought into the lithotomy position, and the lowermost part of the ureter was exposed through an incision in the right vaginal fornix. Through this incision the freed upper end of the ureter was drawn out by means of a dressing forceps, tied off close to the bladder, and cut away. Gauze packing of the vagina and suture of the lumbar wound, except where the drainage (tube and gauze wicks) was brought out. The rather severe operation, lasting 1½ hours, had somewhat exhausted the patient, wherefore 800 grammes of saline solution were infused into her submammary spaces. The effects of the prolonged anesthesia were early overcome, and the healing of the extensive wound went on without a notable interruption. The urine continued to show some pus, but the general condition improved steadily and pain passed with the healing of the wound, which was completed January 28, 1900. The patient still complained from time to time of painful urination. Was discharged at her own request, with recommendation to report in two weeks. February 25: Wound firmly healed; cutting pain in urethra, the cause of which was found to be a small spindle-shaped calculus protruding from the urethral orifice. It was easily extracted.

PERINEUM AND MALE GENITAL ORGANS—total, 87; deaths, 2.

	Total.	Cured.	Improved.	Not improved.	Died.
Abscess, ischio-rectal	4	3	..	1	..
" periurethral	1	1	..	..	..
Atheroma of perineum	1	1	..	..	..
Carcinoma of rectum	3	..	2	1	..
Epididymitis, gonorrhoic	2	2	..	..	..
Fistula in ano	17	16	1	..	..
Gangrene of scrotum	1	1	..	..	..
Hemorrhoids	45	45	..	..	..
Hydrocele of cord	1	1	..	..	..
Hypertrophy of prostate	3	1	1	..	1
Orchitis, tubercular	1	1	..	..	..
Papillomata of anus	1	1	..	..	..
Prolapse of rectum	2	2	..	..	..
Rupture of urethra	2	2	..	..	..
Stricture of urethra	1	..	..	..	1
Varicocele	2	2	..	..	..

CARCINOMA OF RECTUM—total, 3; improved, 2; not improved, 1.

Of the three cases of carcinoma of rectum admitted to the hospital, one case (1900, vol. i., page 466) was such that while a radical operation was impossible, there was no indication for a palliative operation. The second case (1900, vol. ii., page 863) was so far advanced that a radical operation was impossible, but as a palliative measure the cauliflower growth, involving principally the anus, was thoroughly curetted away and its base burned with a Paquelin cautery, and thus the patient relieved, at least for the time being, from the most distressing symptoms. In the third case, to be shortly described, a radical operation was attempted, and, although the tumor was extirpated full two inches on either side in healthy tissue, there was already noted a beginning recurrence at the time of discharge about seven months after operation.

1900, vol. i., page 439. *Carcinoma of Rectum; Extirpation by the Sacral Route; Anastomosis by Maunsell's Method; Separation of a part of the Suture Line, necessitating later Plastic Operations; Discharged Improved.*—Annie L., 39 years of age, was admitted to the hospital September 11, 1899, with a history of about fifteen months standing which pointed to an

organic obstruction in the rectum. On examination it is found that the lumen of the rectum, three inches from the anus, is constricted so as to barely admit the tip of the examining finger, by a mass which is approximately two inches wide and two inches long.

Operation, September 15, 1899. Chloroform narcosis. Through an osteoplastic flap formed by the Rydygier method, the tumor was exposed. It was at first attempted to pull down the upper part of the rectum without opening the peritoneum; but as this did not permit sufficient mobility, the peritoneum was opened and a sufficient portion of the sigmoid flexure pulled down, after which the peritoneum was immediately closed. Extirpation of the rectal mass, going at least two inches on either side, into apparently healthy tissue; anastomosis by Maunsell's method; replacing of the sacral flap, with drainage.

The immediate subsequent course was uneventful. Bowels moved for the first time four days after the operation. Next day it was noted that there was some leakage along the posterior line of suture. On November 2 there was still an opening in the posterior wall of the rectum, which just admitted the tip of the index finger. On this day a closure of the opening by suture was attempted, but it was not successful. On December 11 this was carried out successfully, and on February 5, 1900, the outer wound was closed in part by secondary suture. The wound, however, showed very little tendency to contract and heal; and about this time there could already be noted some infiltration in the suture line. Patient was discharged on April 8, 1900, to enter a home for incurables.

HEMORRHOIDS—total, 45; cured, 45.

While the number of minor rectal cases (hemorrhoids and fistulæ in ano) is perhaps not as large as in the preceding year, it is still sufficiently large to overcrowd a hospital of limited capacity, and in this manner occupy a large number of beds which could be more profitably filled with other, more urgent cases. These ailments, however, are just as important as others, and as it does not appear to be advisable to treat them in an ambulatory manner in the Outpatient Department, admission cannot be well refused to them. About the only thing that could be done, under these circumstances, was to search for a method which would combine the following three qualifications: *viz.,* (1) rapidity or, better said, short confinement to

bed; (2) safety of the procedure; and (3) certainty of cure. With this object in view, a number of cases were treated with injections of carbolic acid. As this, however, did not materially shorten the period of hospital treatment, recourse was again taken to the clamp and cautery, which, with the exception of the few trial cases, was practically the operation of choice in all cases of hemorrhoids.

HYPERTROPHY OF PROSTATE—total, 3; cured, 1; improved, 1; died, 1.

During the greater part of the year the genito-urinary cases continued to be admitted to the genito-urinary service of Dr. Fluhrer, and, during his absence, to the service of Dr. H. Lilienthal. There were no cases of hypertrophied prostate admitted directly to the service, and the following three cases are those which were admitted to the First Surgical Division as private patients. The two cases which have recovered have a decided interest from a surgical standpoint, and on this account their histories are given in detail.

1900, vol. i., page 168. *Hypertrophy of the Middle Lobe of the Prostate; Secondary Hemorrhage after Cauterization of the Middle Lobe; Osteomyelitis of the Pubic Bones, with Separation of the Symphysis; Septicemia; Recovery.*—Leopold L., 38 years of age, was admitted to the hospital on October 15, 1899. Of his past history only the following points bear a relation to his present illness. Gonorrhea fifteen years ago and soon thereafter was operated upon for a stricture of the urethra. For the past ten years more or less trouble with micturition, this trouble consisting principally of a difficulty in beginning the act; from time to time, however, patient was entirely free from this trouble and micturition was entirely free. The present trouble dates back about seven months, at which time there were added the further symptoms of increased frequency in urination, with pain in the back and suprapubic region. Upon admission the urine was slightly cloudy, lemon yellow in color, of acid reaction, 1012, and contained a moderate amount of pus and few epithelial cells. Amount of urine passed in twenty-four hours, over 50 ounces.

The physical examination revealed nothing of importance, excepting that pressure upon the lower edge of the prostate caused pain in the glans penis and a desire to urinate.

Operation on October 21, 1899. Chloroform anesthesia. Through a transverse incision, about four inches long, in the suprapubic region, the two recti muscles were retracted and the bladder opened. The palpating finger very readily detected a hypertrophied median lobe which obstructed the urethra. After protecting the bladder with gauze, this lobe was cauterized with Paquelin cautery, particular attention being paid to burning a groove through its middle. Suture of the bladder wound and of the external incision, leaving space only for drainage by means of a "T" tube.

On the following day the pulse suddenly became very weak and rapid (122) and the temperature rose to 104°, with symptoms of an active hemorrhage. On examination the dressings were found to be saturated with blood, and several large blood clots were removed from the bladder, after which the bladder was firmly packed with gauze. The general condition was such as to require very active stimulation and intravenous saline infusion. The patient rallied but very slowly after this incident, being particularly troubled with singultus during the following few days. The temperature ranged between 102° and 104°, pulse weak and rapid. On October 27 a large indurated area made its appearance to the left of the suprapubic incision and over Poupart's ligament, which in the subsequent course required an incision. Examination on November 1 revealed the presence of necrotic bone over the body of the left pubic bone, and on a subsequent occasion, after the separation of the sloughing periosteum, fasciæ, and cartilage, a separation of the symphysis was noted. In spite of these manifold complications, the patient continued to do well and was discharged in perfectly good condition on January 7, 1900.

1900, vol. ii., page 26. *Hypertrophy of Prostate; Sepsis; Death.*—Aaron Ch., 84 years of age, was admitted on July 24, 1900, with a comparatively recent wound in the suprapubic region (operative) for drainage for retention of urine, in a condition of profound sepsis, and died within twenty-four hours.

1900, vol. ii., page 59. *Hypertrophy of Prostate (Fibro-adenoma); Operation by Perineal Route; Recovery.*—Julius E., 59 years of age, was admitted to the hospital on July 13, 1900, with following history: Patient has been complaining for the past two years of frequent urination and pain in the region of the prostate, this condition growing decidedly worse during the past half year. Urination was described to be scalding, there being an intense pain in the glans penis during and after micturition. Examination revealed a moderate intumescence, about the size of a hickory-nut, occupying the left lobe of the pros-

tate; a similar but much smaller node occupies the right lobe. Cystoscopically there is no pathological lesion visible in the bladder. Urination is very frequent, hourly. Urine contains 1½ per cent. of sugar, but is otherwise negative.

An exploratory operation was advised and carried out on July 14 in the following manner: With the patient in the lithotomy position, an "H"-shaped incision was made in the perineum and the transverse bar deepened in order to reach the prostate. The space thus afforded was exceedingly cramped, being limited by the narrowness of the pelvic outlet and by the great depth of the prostate. In separating the rectum from the urethra, the former was accidentally torn to the length of one inch. As the original incision did not afford ample space to the prostate, the anterior wall of the rectum was split up to and through the sphincter and upward to the prostate. The capsule of the prostate was then incised and the nodule reached, but it was impossible to shell it out completely, on account of the great depth. After insertion of a tampon canula into the rectum, the wound was packed; open treatment.

Considerable pain followed the operation, but in other respects the progress was uneventful. On August 9 the rectum was closed by secondary suture. Patient was discharged cured on August 26.

RUPTURE OF URETHRA—total, 2; cured, 2.

Two markedly interesting cases of loss of substance of the perineal portion of the urethra were admitted to the hospital and operated upon successfully. In the first case the loss of substance was caused by a trauma (by a fall astride a beam); in the second case it was caused by a gonorrheal stricture inducing a perineal abscess, with subsequent sloughing of the urethra. Both cases are of sufficient interest to merit an extract from the history.

1900, vol. ii., page 330. *Laceration of Urethra by a Trauma; Urinary Infiltration; Septicemia; Operation; Plastic Repair of Urethra; Recovery.*—Samuel F., 11 years old, was admitted to the hospital on August 14, 1900, with following history. Three days prior to admission, while walking on a beam, the patient slipped and fell astride it. Soon thereafter there appeared a discolored swelling in the region of the perineum, and the patient was unable to urinate, necessitating repeated catheterizations. The swelling became more marked and extended

to neighboring regions. On the day before admission, chills accompanied by high fever. Examination on admission shows that the perineum, the scrotum, and the penis are involved in one large, edematous, ecchymotic tumor, the ecchymosis extending on to the abdomen and downward upon the thighs; the entire abdomen is tender and painful; by percussion a large oval tumor is to be mapped out in the suprapubic region.

Operation five hours after admission. Chloroform anesthesia. An attempt was made to pass a guide into the bladder, but all instruments found an impediment at the triangular ligament. An incision about two inches long was made in the median line of the perineum, through the very edematous and gangrenous superficial structures. The tip of the sound previously introduced into the urethra was found to be in a cavity containing about three ounces of a very fetid, purulent urine, having passed through a rent about 1 inch long in the floor of the membranous and anterior portions of the urethra. After some search, the proximal part of the urethra was found, and through it a catheter was introduced into the bladder, which was thereupon evacuated and irrigated. A number of incisions were made into the almost completely gangrenous scrotum, also on the penis, perineum, and suprapubic region. Gauze drainage.

The subsequent course was excellent in every respect; the temperature dropped to normal within a few hours. By September 1 all the wounds were practically healed, so that on September 7 a secondary operation for the closure of the perineal fistula could be carried out. The ends of the lacerated urethra were liberated from the surrounding tissues. The laceration is found not to be complete, so that a strip of about one-quarter of an inch of mucous membrane (superior wall of the urethra) connects the two parts. A No. 5 soft-rubber catheter was passed through the meatus into the bladder and the edges of the lacerated urethra united as much as possible over the catheter by interrupted sutures of fine catgut. Suturing of the superficial parts by interrupted sutures completed the operation.

On the fourth day after the operation, it was found that the catheter had become misplaced and that there was some leakage through the perineal wound. On September 16 the catheter was removed permanently and the patient could urinate per meatum, but there was also some leakage in the perineum. On October 8 the perineal fistula closed completely and patient was discharged cured on October 9, to return every other day for the passage of sounds.

1900, vol. ii., page 790. *Abscess of Perineum Caused by a Gonorrheal Stricture of the Urethra; Sloughing of the Urethra; Operation with Subsequent Plastic Repair of the Urethra; Recovery.*—Joseph K., 45 years of age, was admitted to the hospital on August 29, 1900, with following history: Patient had gonorrhea twenty years ago. Has had no trouble with urination until three years ago, when he noticed that the stream of urine became smaller in calibre. This condition became progressively worse, and in the course of time was accompanied by considerable bladder tenesmus and by hematuria. During the past few weeks also considerable rectal tenesmus and pain on defecation. For the past ten days very great difficulty with micturition, frequent and in very small quantities at a time, the bladder never being emptied completely. At this time also he noticed an intensely painful swelling in the perineum, which practically completely obstructed the outflow of urine. On admission there was found a cystic tumor above the symphysis; and in the right ischio-rectal fossa a painful swelling, about the size of an egg, encroaching slightly upon the left side and communicating by a depression with a smaller mass at the bulbo-membranous junction. Scrotum and penis edematous.

Operation on admission. Chloroform anesthesia. On attempting to pass a catheter into the bladder, it evacuated from the region of the triangular ligament a small amount of foul-smelling, purulent fluid having the odor of long-decomposed urine; it was impossible to pass a catheter beyond this point. With the patient in the lithotomy position, a median longitudinal incision was made in the perineum and an abscess cavity, containing the fluid above described, reached, which communicated, through a gangrenous necrotic portion, with the urethra. A catheter was then introduced into the bladder, the bladder evacuated, irrigated, and drained.

The subsequent course was uneventful. By September 10 the wound had cleared from all necrotic tissue, so that it was in a condition for the performance of a secondary operation. On account of a bad cystitis, urethroplasty was impossible; the entire wound was therefore treated openly, as in external urethrotomy.

By September 28 the condition of the parts was such that the final operation, urethroplasty, could be proceeded with. After the introduction of a catheter into the bladder, the urethra was liberated from its adhesions and was sutured over the catheter by interrupted catgut sutures. Suture of the perineal wound. The wound healed by primary union, and patient was discharged cured on October 14. On a subsequent presentation there was no difficulty in passing a No. 28 F. sound.

STRICTURE OF THE URETHRA—total, 1; death, 1.

A fatal issue after external urethrotomy is of so rare occurrence that the record of one such case will not be out of place. The cause of death was unquestionably sepsis, having its origin in a septic thrombophlebitis of the prostatic plexus of veins, and advancing to a purulent thrombophlebitis of all the pelvic veins of the corresponding side, including the common and external iliac and femoral veins. It appears more probable that the septic material was introduced, not at the time of the operation, but at a subsequent introduction of a sound; because the course was perfectly smooth and normal for six days after the operation; on this day, after the introduction of three sounds (22, 23, and 25 F.), there occurred a chill and rise of temperature up to 102.4°.

1900, vol. ii., page 141.—*Stricture of the Urethra; External and Internal Urethrotomy; Thrombophlebitis of the Prostatic Plexus of Veins; Septicemia; Death.*—H. B., 30 years of age, was admitted to the hospital on June 5, 1900, when following history was obtained. Patient acquired gonorrhea eight or nine years ago, of which he never was entirely cured. Denies syphilitic infection. Since the gonorrheal infection the stream of urine has gradually become smaller until now, when he has to force the urine out in drops. Was repeatedly treated with sounds, but without permanent relief.

Operation on June 8, 1900. Chloroform anesthesia. External and internal urethrotomy performed, the former without a guide.

As already stated in the introductory remarks, the subsequent course was uneventful and entirely normal until June 14, when, after the passage of three sounds, the patient developed a chill, with a rise of temperature up to 102.4° F. From this time on the condition became one of advancing sepsis, until he reached a condition of pyemia with secondary foci in other parts of the body. It may be worthy to record that streptococci were found in the blood by culture methods; and that antistreptococcus serum was tried, but without the slightest effect. Patient died on July 26, 1900.

UPPER EXTREMITY—total, 40; deaths, 2

	Total.	Cured.	Improved	Not improved.	Died.
Abscess of axilla	1	1	..	..	..
" " arm	1	1	..	..	..
" " forearm	1	1	..	..	..
Aneurism of brachial artery, traumatic	1	1	..	..	..
Brachial neuralgia	1	1	..	..	..
Burn of forearm	1	1	..	..	..
" " " and face	1	1	..	..	..
Contraction of elbow joint, spastic	1	1	..	..	..
Dislocation of elbow joint	2	2	..	..	..
" " " " old	1	..	1	..	..
Fracture of humerus	1	1	..	..	..
" " " malunion	1	1	..	..	..
" " clavicle, "	1	1	..	..	..
" " olecranon	1	1	..	..	..
" " radius and ulna	1	1	..	..	..
" " scapula	1	1	..	..	..
Gangrene of finger (carbolic acid)	1	1	..	..	..
" " hand, diabetic	1	..	..	..	1
Lymphadenitis of axilla	1	1	..	..	..
" " " and neck, tuberculous	1	1	..	..	..
Lymphosarcoma of axilla	1	1	..	..	..
Myositis of forearm	1	1	..	..	..
Osteomyelitis of humerus	1	1	..	..	..
" " radius	1	1	..	..	..
" " ulna, tuberculous	1	1	..	..	..
Phlegmon of finger	3	3	..	..	..
" " hand	4	3	..	..	1
" " " and forearm	3	3	..	..	..
" " arm	1	1	..	..	..
" " scapular region	1	1	..	..	..
Sarcoma of axillary glands	1	1	..	..	..
Tuberculosis of elbow joint	1	1	..	..	..

TRAUMATIC ANEURISM OF BRACHIAL ARTERY—total, 1; cured, 1.

Cases of aneurism after injury are of so infrequent occurrence in times of peace that even the occurrence of a single case in a comparatively large and varied surgical experience warrants a few notes in the publication of an annual report. The case is so self-evident that it can otherwise be passed over without any additional remarks.

1900, vol. i., page 647. *Traumatic Aneurism of Brachial Artery; Operation; Ligation of the Vessel above and below the Wound; Recovery.*—Barnett W. was admitted to the hospital on April 14, 1900, with following history: Two weeks ago the

patient accidentally ran the point of a knife into the upper and inner part of the cubital fossa of the left arm. Before aid was summoned the comparatively slight wound bled very profusely. A physician who was summoned controlled the hemorrhage by a constricting bandage, and inserted a suture into the wound. This wound was completely healed within a few days. Since then there developed at the site of the wound a small (walnut sized) pulsating tumor which is the cause of a great deal of pain.

Examination revealed the following condition: The elbow joint is held flexed at an angle of 120°. On the anterior aspect of the bend of the elbow, situated beneath a very slight scar and corresponding to the course of the brachial artery, there is a soft, moderately tender, semi-globular mass about the size of a walnut. The mass pulsates distinctly; the pulsation is expansile and can be felt as well as seen, and extends for a considerable distance upwards. The skin covering it, and for a considerable distance in all directions, is discolored by blood pigment. A loud systolic bruit is heard over the tumor; the radial pulse is feebler and delayed when compared with the opposite side; the cephalic vein is very prominent; pulsation in the tumor disappears on compression of the axillary artery. The diagnosis of traumatic aneurism was evident and operation was decided upon.

Operation April 16, 1900. Chloroform anesthesia. After applying a constrictor to the upper part of the arm, an incision about three and one-half inches long was made over the pulsating tumor. The cubital fossa was found to be filled with large masses of clotted blood, the clot having extended between the muscular planes, upwards and downwards, to the extent of three inches in either direction. After evacuating the blood clots, a small opening was found in the bottom, communicating with another cavity, also containing clotted blood. After cleaning out this second cavity, the brachial artery was seen to occupy part of its wall. The brachial artery just before its bifurcation was the part seen in the wound, the wall of the vessel presenting an incised wound for two-thirds of its circumference. The artery was ligated with catgut above and below the wound, as well as the radial recurrent. After releasing the constrictor other smaller vessels were also ligated. Open treatment.

The subsequent course was uneventful; patient was discharged cured May 6, 1900.

DIABETIC GANGRENE OF HAND—total, 1; death, 1.

While diabetic gangrene of the lower extremities is not of infrequent occurrence, diabetic gangrene of the hand is comparatively rare. The one case which presented itself for treatment came to the hospital in so bad a condition that about the only interference which could be carried out was to make a liberal incision in the phlegmonous part and to relieve the great tension. All attempts at relieving the desperate condition were fruitless and patient died eighteen hours after admission.

1900, vol. ii., page 269. *Diabetic Gangrene of Hand; Septicemia; Operation; Diabetic Coma; Death.*—Rosie S., 44 years of age, was admitted to the hospital on October 14, 1900, with following history: Patient has been suffering for years from diabetes. About one week ago patient developed a phlegmon of the left hand, for which the middle finger was amputated at one of the other city hospitals. She was discharged from there, but soon thereafter the hand has become more swollen and painful.

Examination shows the left hand to be much swollen and tender, and of a deep purplish color which extends upwards on the forearm. The middle finger is missing at the metacarpo-phalangeal articulation; the margins of the wound are gangrenous. A probe passes for a long distance upward beneath the annular ligament; on pressure pus exudes; the entire metacarpal bone is denuded of its periosteum. Heart's action feeble and rapid.

Immediately on admission an incision was made on the dorsal and palmar surfaces of the hand, and considerable pus evacuated. In the depth all the tissues, including the metacarpal bone, were found to be necrotic.

Soon after the operation the patient fell into a condition of diabetic coma, in which she expired a few hours later.

Lower Extremity—total, 71; deaths, 6.

	Total.	Cured.	Improved	Not improved	Died.
Abscess of inguinal region	2	2			
" " thigh	1	1			
" " " tuberculous	1		1		
" " ankle	1	1			
Ankylosis of hip joint	1			1	
Arthritis of knee joint, traumatic	1	1			
Bursitis, prepatellar	1	1			
" " double	1	1			
" " suppurative	1	1			
" trochanteric, tuberculous	1	1			
Decubitus over hip, neuropathic	1	1			
Dislocation, double congenital, of femur, with fracture of both necks	1		1		
Fracture of neck of femur	3	2		1	
" " femur	2	1	1		
" " patella	1	1			
" " tibia shaft	1	1			
" " " Pott's	1	1			
" " " and fibula	1	1			
" " os calcis, double	1		1		
Gangrene of both legs, diabetic	1				1
" " " " thrombosis	1				1
" " foot	2	1			1
" " " (Reynaud)	1	1			
" " " " double	1				1
" " toes	1	1			
Gumma of tibia, double	1	1			
Gonitis, suppurative	2	2			
Hemarthrosis of knee joint	1	1			
Lymphadenitis, suppurative, of inguinal region	1	1			
Molluscum fibrosum of thigh	1	1			
Neuralgia of external cutaneous nerve	1	1			
Osteomyelitis of femur, acute	1				1
" " " chronic	3		2	1	
" " tibia, acute	1	1			
" " " chronic	1	1			
" " " and fibula	1	1			
Phlegmon of thigh	2	2			
" " foot	3	3			
" " " (gunshot wound)	1	1			
Sarcoma of femur	1			1	
" " " recurrent	2	1		1	
" " tibia	1		1		
" " great toe	1		1		
Sinus, periarticular, of knee joint	1	1			
" of hip joint	1	1			
Thrombophlebitis of leg	1	1			
Tuberculosis of hip joint	6	2	2	1	1
" " ankle joint	4	4			
Varicose veins of leg	3	3			

TUBERCULOSIS OF THE HIP JOINT—total, 6; cured, 2; improved, 2; not improved, 1; died, 1.

Of the six cases of hip disease which were treated at the hospital during the past year, one case terminated fatally. The cause of death in this case was tuberculous meningitis secondary to the tuberculosis of the hip joint.

1900, vol. ii., page 639. *Tuberculous Coxitis; Operation; Resection of the Hip Joint; Tuberculous Meningitis; Death.*—Michael W., 6 years of age, was previously treated at the hospital for a cold abscess of the thigh, with aspiration and injection of iodoform glycerin. He was readmitted on August 18, 1900, with a temperature of 104.4°, pulse 164, respiration 40. On examination there was found a sinus at the site of the previous aspiration, and around it an extensive inflammatory areola. He was placed in the isolation ward with a diagnosis of erysipelas, where he remained for eleven days. On being transferred to the general service, the inflammatory process was so extensive that immediate operation was proceeded with.

Operation on August 30, 1900. On account of the bad general condition, general anesthesia was out of the question, hence the operation was done under spinal cocaine anesthesia, one-eighth grain of cocaine, dissolved in ten minims of distilled water, being injected into the subarachnoid space; within three and one-half minutes complete anesthesia was attained and the operation proceeded with.

Through a Langenbeck incision the right hip joint, containing fetid pus, was exposed; the head of the femur was found to be necrotic, also the acetabulum and adjoining part of the ilium and ischium. The head of the femur was resected and as much as possible of the necrotic tissue extirpated. Drainage. Limb put up in extension.

After the operation the patient improved considerably for a while, in spite of an intercurrent pyocyaneus infection. In course of time too profuse discharge from the wound necessitated a counter-incision. Patient was in this condition up to October 10, when symptoms of tuberculous meningitis arose; his condition became gradually worse until he expired on October 22.

Even the most superficial glance at the report of this year will show at once that for the first time a strictly regional report is attempted. After attempting a strictly pathological re-

port on one hand, and a strictly operative report on the other hand, the regional report appears to be the most feasible one. While it cannot be denied that each of the others has certain advantages to commend it, no one report is absolutely perfect. While, of course, this plan could be carried out perfectly and in its minutest details in the manner proposed, many of the affections of the upper and lower extremities are so similar in their nature and pathology that, for the purposes of better review, it has been deemed to be most expedient to group together certain affections of both the upper and lower extremities from a pathological point of view, and then again to treat other affections from an operative point of view. If the subject is treated in this manner, we would have, on one hand, grouped together all of the fractures and dislocations, all of the abscesses and phlegmons, all cases of osteomyelitis, and on the other hand all amputations.

FRACTURES AND DISLOCATIONS—total, 21; cured, 15; improved, 5; not improved, 1.

	Total.	Cured.	Improved.	Not improved.	Died.
Fracture of clavicle, malunion	1	1	..	..	..
" " humerus	1	1	..	..	..
" " " malunion	1	1	..	..	..
" " olecranon	1	1	..	..	..
" " radius and ulna	1	1	..	..	..
" " scapula	1	1	..	..	..
" " neck of femur	3	2	..	1	..
" " femur	3	1	2	..	..
" " patella	1	1	..	..	..
" " tibia shaft	1	1	..	..	..
" " " Pott's	1	1	..	..	..
" " " and fibula	1	1	..	..	..
" " os calcis, double	1	..	1	..	..
Dislocation of elbow joint	2	2	..	..	..
" " " old	1	..	1	..	..
" " hip joint, congenital, double	1	..	1	..	..

As is well known, this hospital has no ambulance service, which perhaps accounts for the unusually small number of cases which apply for treatment of injuries of this nature.

Part of these cases even were such as have received treatment for a shorter or longer period, either at their home or at some other institution; while others came for correction of deformities which resulted from unsuccessful treatment. It is a rule that the diagnosis of a fracture or deformity is made from the symptoms as they present themselves, and this diagnosis is verified by the Roentgen rays. The treatment is carried out according to the accepted rules applicable to each case. It may, however, be of interest to remark that the one case each of fracture of the olecranon and fracture of the patella were treated, not by immobilization, but by massage and active and passive motion, and that a perfect functional result was obtained in both cases. An impartial and critical judgment of the results obtained in all cases of this class may be said to be on the whole very satisfactory. Out of a total of 21 cases which are placed under this heading, we find 15 cured cases with perfect function. Of the remaining 6 cases, one case was not improved, patient not being treated. The other 5 classed as improved are the following:

(1) 1900, vol. i., page 463. *An old backward and upward dislocation of both radius and ulna,* which came in ankylosed at an angle of 100°. *Bloody reduction of dislocation.* Discharged in a position of flexion with a mobility of 25°.

(2) 1900, vol. ii., page 434. A remarkable case of a *congenital dislocation of both femora.* Only so much is known of the past history that prior to admission attempts were made at reduction. On admission there were found, besides the congenital dislocation, *also* unmistakable signs of *fracture of the necks of both femora.* The child was treated only for the latter; on account of the wretched general health, no attempt was made to cure the dislocation.

(3) 1900, vol. ii., page 28. *Fracture of both os calces,* caused by a jump from the fifth story. While the diagnosis was limited to the fracture of the os calcis, it is more than probable that it was combined with other injuries of the foot. On dismissal patient presented a traumatic flat-foot, and was discharged nominally as improved.

(4) 1900, vol. ii., page 545. *Old fracture of the neck of the femur; malunion;* two months' standing. Patient was discharged not improved on account of advanced pregnancy excluding, for the time being, correction of deformity.

(5) 1900, vol. ii., page 113. *Fracture of the neck of the femur; fair union;* patient discharged in same condition.

OSTEOMYELITIS—total, 10; cured, 6; improved, 2; not improved, 1; died, 1.

	Total.	Cured.	Improved.	Not improved.	Died.
Osteomyelitis of **humerus**	1	1			
" " **radius**	1	1			
" " **ulna, tuberculous**	1	1			
" " **femur, acute**	1				1
" " " **chronic**	3		2	1	
" " **tibia, acute**	1	1			
" " " **chronic**	1	1			
" " " **and fibula**	1	1			

The various cases of osteomyelitis of the bones of the upper and lower extremities were treated customarily by a liberal incision of the soft parts down to the periosteum, and by chiselling away a sufficient portion of the bone for ample drainage. Only once was it attempted to unite the soft parts and to obtain a cure by the moist blood clot of Schede, and in this case, a case of chronic osteomyelitis of the tibia, a good result was obtained. None of the other cases were suitable for this treatment, hence they were treated by the open method.

One fatal case is recorded, in a case of acute osteomyelitis of the femur, but the case was thoroughly septic when admitted to the hospital.

1900, vol. ii., page 761. *Traumatic Staphylomycotic Osteomyelitis of Femur; Septicemia; Operation; Death.*—Charles Sch., 13 years of age, was admitted to the hospital on November 13, 1900, with following history: Four days ago patient fell down a flight of stairs, inflicting an injury to the right thigh and shoulder. Two days after the accident patient had a chill accompanied by high fever and delirium. On admission temperature 104°, pulse 140, respiration 38; two hours later the temperature rose to 106°. Examination showed various contusions of the body, most apparent over the right thigh and shoulder. Blood culture showed the presence of staphylococcus aureus.

It was most probable that the causation of the sepsis was in the femur, hence at the immediate operation this bone was opened, but no pus was found. Aspiration of the hip and shoulder joints was also negative.

The patient did not rally to any material degree, though the temperature fell to 102.4°. It soon rose again, however, and patient died next day with symptoms of a foudroyant sepsis.

AMPUTATIONS—total, 8; cured, 4; died, 3; 1 case required reamputation.

The number of major amputations performed during the past year was very limited, *viz:*

	Total.	Cured.	Improved.	Not improved.	Died.
Amputation of thigh	3	1	..	...	2
" **at the knee (Szabanjeff)**	1	..	..	...	1
" **of the leg**	2	2	..	...	..
" " " **foot (Pirogoff)**	1	..	..	...	..
" " " **thumb (inserted for a special reason)**	1	1	..	...	..

If we exclude the thumb, which certainly cannot be counted in the major amputations, we have seven major amputations on six patients, with a mortality of 50 per cent. Extracts from the histories of these three cases follow later, and will be commented upon at each case.

Two cases (one leg and one thumb) were operated upon by the osteoplastic method of Bier, and the results were not only perfect, but, when compared with stumps finished by other methods, were, from a standpoint of good function, remarkable. The two cases were exhibited at the Surgical Section of the New York Academy of Medicine on November 12, 1900, and published in the New York *Medical News* of February 9, 1901, and require no further comments.

The following three cases of amputation were followed by fatal results:

1900, vol. i., page 478. *Diabetic Gangrene of Right Leg and Thigh; Operation; High Amputation; Gangrene of other Leg; Death.*—Mathilde G., 42 years of age, was admitted to the hospital on March 26, 1900, with following history: Patient is

known to be suffering from diabetes for one and one-half years. Present history is of seven days' duration, and began with pain in the toes of the right foot; the leg gradually changed color and became anesthetic. On examination it is found that the right leg, as far as the knee, is absolutely black and gangrenous, swollen, edematous, and anesthetic. The thigh, for four or five inches above the knee, is covered with purplish and greenish blotches, with subcutaneous emphysema. No pulsation in femoral artery. Left leg apparently normal. *Urine* contains albumin, 2.8 per cent glucose, and acetone. Pulse 116, respiration 36, temperature 102°.

Operation on admission. Chloroform anesthesia. Typical circular amputation through the middle of the thigh; femoral artery and vein found to be thrombosed; very little bleeding after removing the constrictor. Open treatment.

On the next day the left leg also became gangrenous, the process rapidly advancing in an upward direction. On account of the bad general condition of the patient, another amputation was entirely out of question. In spite of all attempts, the gangrene advanced upwards, both on the stump and on the left thigh, involving soon the vulva and lower half of the abdomen. Patient died three days later in this condition.

1900, vol. ii., page 694. *Malnutrition of Foot due to Thrombosis of Femoral Artery; Gangrene of Foot; Septicemia; Operation; Amputation of Thigh; Death.*—H. R., 32 years of age, was admitted to the hospital May 11, 1900, with following history: Patient denies syphilitic infection. For several years past the patient has suffered from varicose veins of his left lower extremity. These were operated upon three years ago, and for a while patient was free from his complaints; but they again returned, for the relief of which another operation was performed, at which the veins of the leg and dorsum of the foot were removed. The wounds all healed by primary union, excepting a small area on the dorsum of the foot; this has resisted all treatment, and is a cause of constant pain to the patient. In addition there has also formed a small ulcer on the dorsum of the little toe of the same foot, which is exceedingly painful.

Examination reveals, in addition to the above, that a probe can be passed for a distance of about three inches upward, apparently within the sheet of one of the extensor tendons; by means of a probe, also, bare bone is discovered at the bottom of the ulcer of the little toe.

The patient was treated with a variety of dressings, and also by internal medication and electricity for some months, without any noticeable improvement.

On September 7 the terminal phalanx of the little toe was enucleated, but in spite of open treatment the resulting wound absolutely refused to heal.

On September 22, in full anesthesia, the ulcer on the dorsum of the foot with the underlying exposed tendon was extirpated and covered with a Thiersch's graft; at the same time the remaining two phalanges of the little toe were extirpated at the metatarso-phalangeal joint. While there were no material local complications as a result of this last operation, the patient continued to complain of pain. The Thiersch graft was not successful, and there was some inflammation about the stump of the little toe. Suddenly the patient began to run high temperature accompanied by delirium; the pulse in the femoral artery became feebler and finally ceased altogether. As an *ultimum refugium*, under these circumstances, only a high amputation was clearly indicated. This was carried out on October 24, 1900; chloroform anesthesia. Typical circular amputation in the lower third of the thigh. The femoral artery was found to be atrophied, and contained an old and well-organized thrombus. After proper drainage the skin was loosely sutured and the wound dressed.

After the operation there was no change in the condition of the patient, and finally patient succumbed two days later.

1900, vol. ii., page 637. *Gangrene of both Feet due to Reynaud's Disease; Operation; Amputation of Left Leg; Post-operative Insolation; Death.*—Benjamin A., 34 years of age, was admitted to the hospital on August 7, 1900, with following history: Patient was repeatedly under treatment at this hospital with the diagnosis "Reynaud's disease"; on the last occasion, December, 1899, two toes were amputated. Since that time patient has always complained of pain in both feet, particularly, however, on the left side.

On admission examination revealed the following points of interest: General condition very poor. Marked atrophy of both lower extremities; the left foot in a position of talipes equinus, right foot same, but to a less degree. Over the metatarso-phalangeal joint of the left great toe there is an ulcer about the size of a silver dollar, with a gangrenous base and overhanging edges, which communicates with the joint. Below Chopart's joint the entire left foot is of a bluish-black color, with gangrenous areas over the heel and dorsum and external border of the foot. The right foot is in a similar condition, but not so extensive.

During the following few days, while the patient was kept in the hospital, the course of the disease was such that it was evident that patient was not doing well. In spite of the general

bad condition, in order to make some attempt to save the patient's life, an operation was decided upon.

Operation August 11, 1900; chloroform anesthesia. Amputation at the knee joint, typically after Szabanjeff.

The patient did not react well after the operation, and was somewhat delirious. Half hour after the operation the temperature suddenly rose to 104.4°, and four hours later to 108.2°; patient was in a condition of complete stupor. Post-operative insolation (the day was exceedingly hot and muggy) was suspected, and the patient was treated with ice packs and other stimulation used. All attempts, however, were without avail, and patient died in collapse six hours after the operation.

At autopsy nothing of importance in relation to the cause of death was found, excepting a turgidity of the meningeal veins; and the plausibility of the diagnosis "post-operative insolation" was well borne out by the negative findings at the autopsy.

Up to that time no such cases were to be found recorded in the literature. Another case, operated upon the same day (calculous cholecystitis), also died, apparently from the same cause. During the past summer another case (strangulated hernia) also developed a similar train of symptoms, but recovered under appropriate treatment. In connection with these cases, it is but just to call attention to a highly interesting paper on this subject by Dr. C. L. Gibson in the *Medical News* of December 8, 1900.

Abscesses and Phlegmons.

The treatment of abscesses and phlegmons, consisting, in a majority of instances, in one or more incisions, with insertion of proper drainage, is apparently so simple as to be barely worthy of a special paragraph. No one, however, who has had occasion to observe a large number of these cases will deny that the proper treatment and subsequent management is, in many instances, not only difficult, but also full of dangers and pitfalls. It would exceed the limits of a report of this nature to narrate more fully the histories of all the phlegmons and abscesses; at the same time it cannot be denied that their proper treatment is fully as important and as difficult as in many of the other major operations. While, perhaps, the operative treatment and

results are not as brilliant, they require just as much skill and judgment, and it does not infrequently happen that repeated operations are required before the progress of the disease is checked.

While the following fatal case is credited to this category as a case of phlegmon of the hand and septic arthritis of the shoulder joint, it in reality should go to the cases of general septicemia, as it was in this condition that the patient was admitted to the hospital.

1900, vol. i., page 417. *Phlegmon of Hand; Septic Arthritis of Shoulder Joint; Septicæmia; Operation; Death.*—Peter F., 53 years of age, was admitted to the hospital on March 28, 1900, with following history: Six days ago patient ran a splinter of wood into the index finger of the right hand; soon thereafter the finger began to swell and became red; the swelling increased, and within three days involved the hand. At this time patient was operated upon at one of the city hospitals, but this did not stay the progress of the disease.

In addition to the symptoms described in the anamnesis, there was found on admission also a swelling of the entire upper extremity up to and beyond the shoulder joint. Patient was exceedingly muscular, hence palpation of the shoulder joint was not very satisfactory; but there remained no doubt of an involvement of the shoulder joint, which was verified before the operation by an exploratory puncture. Temperature 105° to 107°, pulse 168, respiration 44. The desperate condition was recognized, but in spite of this, as a last resort, an operation was decided upon.

Operation a few hours after admission. Three incisions were made on three sides of the shoulder joint and a dark, sanguineous pus was evacuated. The head of the humerus was found to be necrotic in part, and the necrotic portion was therefore gouged out. On opening the joint gas also escaped. Incision upon the finger extended upward on the forearm, liberating a quantity of pus and gas. Drainage.

The patient was placed on full stimulation, but he succumbed within a few hours to the foudroyant sepsis.

UNCLASSIFIED CASES—total, 14; deaths, 2.

	Total.	Cured.	Improved.	Not improved.	Died.
Actinomycosis, universal	1				1
Intermittent fever	1	1			
Tropical fever	1			1	
Reynaud's disease	2	1		1	
Sacral neuritis	1	1			
Sepsis (cause not discovered)	1				1
Chronic constipation	2	1	1		
Fecal impaction	2	2			
Simulants	3				

There occur a few cases in every service which, on account of their nature, cannot well be classified under any heading; they are cases either of a systemic infection, or such that the disease breaks out in so many parts of the body that it is difficult to ascribe a proper localization to it. It was attempted to do away altogether with this classification, but there still remained a few cases in which it could not be avoided.

This division also has its death record, *viz:*

1900, vol. i., page 368. *General Actinomycosis, Primary Focus in the Peritoneum; Multiple Operations; Exhaustion; Death.*—David Sp., 13 years of age, was admitted to the hospital March 15, 1899, with following history: Nine days ago patient began to have pains in the abdomen, which finally became localized in the right side; in addition to this there existed also, during the past three days, considerable bladder tenesmus.

Examination on admission showed the patient to be pale, emaciated, and anemic. There is a large, painful, and tender mass involving the hypogastric and right inguinal regions; by rectal examination a large, painful, and indurated mass is felt on the right side and in front of the rectum. Temperature 102°.

Operation on admission; chloroform anesthesia. A median abdominal incision was made about half way between the umbilicus and the symphysis. After dividing the transversalis fascia, an abscess cavity was opened into and a large quantity of semi-solid, cheesy material evacuated; the cavity was found to be of considerable size, located above the bladder, and in

branches extending upwards to the liver and downwards and to the right towards the appendix. The cavity was curetted and packed with iodoform gauze.

While the patient was materially improved after this operation, it was apparent that there was still some retention and absorption from the mass to be felt per rectum, hence on March 28 the patient was again placed under the influence of an anesthetic, and a large abscess located in the recto-vesical fossa opened and drained per rectum.

Again improvement followed this operation until a third large, undrained abscess, with its accompanying constitutional symptoms, made its appearance to the left of the median line in the abdomen. This was also operated upon on April 17, by liberal incision and subsequent drainage. At the same time the newly formed masses were curetted away from the rectum. The diagnosis of actinomycosis having been verified by pathological examination, the patient was placed under increasing doses of iodide of potassium. Shortly after this operation the patient developed a pneumonia, which was followed by an empyema requiring operation and drainage.

The subsequent course, while very interesting from a pathological and surgical standpoint, would, if published in its entirety, occupy far too much space on account of the many repetitions. Actinomycotic nodules and abscesses followed each other in succession in various places of the body, and required repeated operations. Internal medication had absolutely no effect in retarding their development or preventing their formation. Patient gradually but surely lost in weight and strength, and finally died on February 6, 1900, nearly one year after the onset of the disease.

1900, vol. i., page 422. *Acute Septicemia, cause not discovered; Operation; Exploratory Laparotomy for Suspected Suppuration in Upper Part of Abdomen; Death.*—Jacob R. was admitted on March 30, 1900, to the medical service of the hospital with following history: During the past six months patient has been suffering from continuous pain in the upper part of the abdomen; four days ago patient became jaundiced and had a chill accompanied by high fever.

Examination on admission revealed, besides the icterus, nothing abnormal, with the exception of an indefinite resistance in the upper part of the right rectus. Urine contained albumin and casts. Temperature 104.2°, pulse 112, respiration 28. Leucocytes 10,700.

He was transferred for exploratory laparotomy to the surgical service; this was carried out on April 22, under ether anesthesia, but absolutely nothing abnormal found.

After the operation the general condition continued about the same, with high temperature, rapid and feeble pulse. Patient died two days later.

LIST OF OPERATIONS PERFORMED IN THE FIRST SURGICAL DIVISION OF THE HOSPITAL,

From December 1, 1899, to November 30, 1900.

Total, 546.

Head and Neck—Total, 43.

	No.
Amputation of hernia cerebri	2
Cauterization (Paquelin) of parotid fistula	1
Curettage of lupus of ear and nose	1
Excision of cortical centres for upper extremity, for epilepsy	1
Exploratory craniotomy for suspected cerebral hemorrhage	1
" craniotomy for Jacksonian epilepsy	1
Extirpation of angioma of frontal region	1
" " multiple atheromata of scalp	1
" " submaxillary gland	2
" " tonsil for tumor (external operation)	1
" " tuberculous glands of neck	2
Ignipuncture for angioma of lip	1
Incision of carbuncle of neck	1
" " subperiosteal abscess of inferior maxilla	1
" " peritonsillar abscess	1
" and drainage for abscess of parotid	4
" " " " alveolar abscess	1
" " " " cervical abscess	3
" " " " empyema of antrum of Highmore	1
" " " " sinus of jaw	1
" " " " submaxillary abscess	1
" " " (secondary) for abscess of brain	1
Laryngectomy for carcinoma	1
Osteoplastic resection of superior maxilla for retronasal sarcoma	1
Osteotomy for osteomyelitis of frontal bone	1
Plastic operation on scalp, for hernia cerebri	1
Resection of second division of trigeminal nerve (Lossen-Braun) for neuralgia	1
" " superior maxilla for sarcoma	1
Rhinoplastic (Indian method) for epithelioma of nose	1
Secondary operation for epithelioma of nose	1
" " " sarcoma of nasopharynx	1
Sequestrotomy of superior maxilla	1
" (secondary to craniotomy)	1
Tonsillotomy	1
Thyroidectomy (half) for exophthalmic goitre	1
Total	43

THORAX—TOTAL, 30.

	No.
Amputation of breast for carcinoma (Halsted)	5
Curetting of sinus of back (Pott's disease)	1
Excision of muscles and glands for recurrent carcinoma of breast	1
Exploratory aspiration of chest	1
" " " " and liver	1
Extirpation of lipoma of back	1
" " " neurofibroma of intercostal nerve	1
Incision and drainage for abscess of back	1
" " " " " breast	6
" " " " " multiple actinomycotic abscesses of back	1
Intercostal incision for empyema	3
Resection of one or more ribs for empyema	4
" " " " " " " sacculated empyema	1
" " " " " " " empyema and abscess of lung	2
" " ribs and pneumotomy for echinococcus of lung	1
Total	30

ABDOMEN—TOTAL, 270.

Stomach, 5.

Gastro-enterostomy for carcinoma of stomach	2
" " " hourglass contraction of stomach	1
Gastrostomy (Kader) for carcinoma of esophagus	1
" (Witzel) " " " "	1
Total	5

Intestines, 16.

Colostomy for intestinal obstruction	2
Enterorrhaphy for closure of artificial anus	2
" " traumatic perforation of intestine	1
" " typhoid perforation of intestine	1
Exploratory laparotomy for intestinal obstruction	2
" " " lymphosarcoma of intestine	1
" " " tumor of colon	1
Enterostomy for intestinal obstruction after herniotomy for very large hernia	1
Extirpation of sigmoid flexure and part of rectum for carcinoma	1
Laparotomy for acute intestinal obstruction, volvulus	1
" " adhesions about sigmoid flexure	1
" primary to colostomy	1
" for strangulated hernia into fossa of Treitz; diffuse peritonitis	1
Total	16

Appendix, 144.

Appendectomy for acute catarrhal appendicitis	6
" " " appendicitis and abscess	12
" for acute appendicitis, abscess, and general purulent peritonitis	5
" for acute appendicitis and sero-purulent peritonitis	1
" for acute catarrhal appendicitis and serous peritonitis	1

	No.
Appendectomy for acute gangrenous appendicitis	4
" " " " " and abscess	11
" for acute gangrenous appendicitis, abscess, and general purulent peritonitis	1
" for acute empyema of appendix	2
" " " perforative appendicitis and abscess	13
" for acute perforative appendicitis, abscess, and diffuse sero-purulent peritonitis	3
" for acute perforative appendicitis, abscess, and diffuse peritonitis	3
" for acute perforative appendicitis and general purulent peritonitis	1
" for acute ulcerative appendicitis	2
" for acute ulcerative appendicitis and diffuse sero-purulent peritonitis	1
" for acute obliterating appendicitis	1
" " chronic appendicitis	6
" " " catarrhal appendicitis	12
" " " appendicitis and abscess	2
" " appendicitis	3
Curetting of sinus secondary to appendectomy	2
Exploratory operation secondary to appendectomy	1
Incision and drainage (no appendectomy) for acute appendicitis and abscess	19
" and drainage (no appendectomy) for acute appendicitis and general purulent peritonitis	2
" and drainage (no appendectomy) for acute gangrenous appendicitis and abscess	1
" and drainage (no appendectomy) for acute gangrenous appendicitis, abscess, and general purulent peritonitis	2
" and drainage (no appendectomy) for chronic appendicitis and abscess	1
Incision and drainage of abscess secondary to appendectomy	3
Secondary suture after operation for appendicitis	3
Total	124

Liver, 10.

Exploratory laparotomy for carcinoma of liver	1
" " " syphilitic hepatitis	1
Incision and drainage for abscess of liver	3
Laparotomy and omentopexy for cirrhosis of liver	1
Transpleural hepatotomy for abscess of liver	3
" " " " " " (secondary operation)	1
Total	10

Gall Bladder and Ducts, 18.

Cholecystectomy and choledochotomy for cholelithiasis	1
" " " " impacted gallstone	1
Cholecystenterostomy for carcinoma of bile ducts and pancreas	1
Cholecystotomy for cholecystitis	1
" " cholelithiasis	6
" " " and appendectomy	1
" " " " cholecystitis	1
" " " " empyema of gall bladder	1
" " " " hydrops of gall bladder	1

	No.
Cholecystotomy (secondary) for retention	1
Choledochotomy for impacted gallstone	1
Exploratory laparotomy for carcinoma of gall bladder and ducts	2
Total	18

Kidney, 25.

Cystoscopy	6
Exploratory laparotomy for nephroptosis (sacral)	1
Incision and drainage (secondary to nephrotomy)	1
" " " for perinephritic abscess	1
" " " of ureter after nephrectomy	2
Nephrectomy for hydronephrosis	1
" " pyonephrosis	4
" " " of sacral kidney	1
" " tuberculous pyelonephritis	2
Nephrotomy for calculous pyelonephritis	3
Ureterectomy for tuberculosis of ureter	1
Ureteroplasty (Fenger) for hydronephrosis due to congenitally narrow and double ureter	1
Ureterotomy for impacted stone	1
Total	25

Female Genital Organs, 16.

Abdominal hysterectomy	2
Anterior colporrhaphy	1
Curettement of uterus for endometritis	2
Double salpingo-oöphorectomy and appendectomy	1
Laparotomy for double intraligamentous ovarian cystoma	1
" " extrauterine pregnancy	1
" " pyosalpinx and general purulent peritonitis	1
Posterior colporrhaphy	1
Salpingo-oöphorectomy and appendectomy	1
" " " during pregnancy	1
" for ovarian tumor	1
" " cyst of ovary and pyosalpinx	1
" " multilocular cystoma of ovary	1
" " cystoma of ovary	1
Total	16

Hernia, 41.

Herniotomy for very large scrotal hernia	2
" " strangulated femoral hernia	1
" " " inguinal hernia (no radical operation)	2
" " " " " (radical operation)	3
" " strangulated inguinal hernia, per glissement (radical operation)	1
Radical operation (Bassini) for femoral hernia	1
" " " " inguinal hernia	22
" " " " double inguinal hernia	4
" " (Halsted) for inguinal hernia	1
" " (Bassini) " " " with appendectomy	1
" " for ventral hernia	2
" " " double ventral hernia	1
Total	41

Parietes, 4.

	No.
Incision and drainage for extraperitoneal abscess	3
Total	3

Peritoneum, 12.

Exploratory laparotomy	5
" " for sarcoma of mesentery	1
Incision and drainage for intraperitoneal abscess	1
" " " " subphrenic abscess	1
" " " " tuberculous peritonitis (abscess)	1
Transpleural operation for subphrenic abscess	2
" " " " " and empyema	1
Total	12

PERINEUM AND MALE GENITALS—TOTAL, 96.

Castration for tuberculosis of testicle	1
" and extirpation of vas deferens, seminal vesicle, and half of prostate for tuberculosis	1
Cauterization (Paquelin) of large papilloma of anus	1
Circumcision for phimosis	1
Curetting and cauterization of carcinoma of rectum	1
Dilatation of sphincter ani	1
External urethrotomy and multiple incisions for traumatic rupture of urethra	1
" and internal urethrotomy for stricture	1
Extirpation of atheroma of anus	1
" " sphincter ani (secondary)	1
" " varicocele	2
" " urethral caruncle	1
Fistula in ano, division and curettage	15
" " " division and curettage, and hemorrhoids, clamp and cautery	4
Hemorrhoids, clamp and cautery	36
" carbolic-acid injection	6
" ligature	1
Incision and drainage for abscess of perineum	1
" " " " ischio-rectal abscess	3
" " " " periurethral abscess	1
" " " " prostatic abscess	1
Ligature and cauterization for prolapse of rectum	1
Linear cauterization for prolapse of rectum	1
Proctoscopy	1
Prostatectomy (perineal) for adenoma of prostate	1
Radical operation (Bassini) for hydrocele of round ligament	1
" " (Volkmann) for hydrocele of tunica vaginalis	1
" operation (Volkmann) for hydrocele of tunica vaginalis and cord	1
Resection of rectum for benign stricture	1
Revision of perineal abscess	1
Secondary operation for closure of fistula after extirpation of rectum	2
" suture of rectum	1
Skin graft (Thiersch) to cover defect of scrotum	1
Urethroplasty for defect of urethra	2
Total	96

Upper Extremity—Total, 42.

	No.
Amputation of finger	3
" " thumb, osteoplastic (Bier)	1
Arthrotomy of elbow joint for suppuration	1
" " shoulder joint for septic arthritis	1
Bloody reduction of old posterior dislocation of elbow joint	1
" operation for malunion of fracture of humerus	1
Brisement forcé for contraction of elbow joint	1
Double ligation for traumatic aneurism of brachial artery	1
Extirpation of axillary glands	1
" " sarcoma of axillary glands	1
Incision and drainage of axillary abscess	3
" " " for myositis of forearm	1
" " " " wound of elbow	1
" " " " phlegmon of finger	2
" " " " " " thumb	1
" " " " " " hand	9
" " " " " " " and forearm	3
" " " " " " arm	2
Osteotomy for deformity of clavicle after fracture	1
" " osteomyelitis of humerus	1
" " " " radius	1
" " " " ulna	1
Resection (atypical) for tuberculosis of elbow joint	1
Skin-grafting (Thiersch) for burns	3
Total	42

Lower Extremity—Total, 65.

Amputation of thigh for diabetic gangrene	2
" " " " thrombosis gangrene	2
" " leg for Reynaud's disease	1
" " " (Bier) for tuberculosis of foot	1
" " " " " sarcoma of great toe	1
" " " (Szabanjeff) for Reynaud's disease	1
" " foot (Pirogoff) for Reynaud's disease	1
" " toes	4
Antiseptic irrigation of knee joint for synovitis	2
Curettement of sinus of leg	2
" " tubercular sinus of ankle	1
Extirpation of inguinal glands	1
" " lipoma of thigh	1
" " molluscum fibrosum of thigh	1
" " prepatellar bursæ, double	1
" " recurrent sarcoma of hip	1
" " sarcoma of tibia	1
" " varicose veins of leg	1
Incision and drainage for abscess of groin	1
" " " " " " hip	1
" " " " " " thigh	3
" " " " " " foot	1
" " " " psoas abscess	2
" " " " suppurating inguinal glands	1
" " " " periarticular sinus of knee	1
" " " " suppurating prepatellar bursitis	2
" " " " phlegmon of groin	2
" " " " " " thigh	2
" " " " " " foot	1

	No.
Iodoform oil injection of psoas abscess	1
Multiple ligation for varicose veins of leg	1
Osteotomy for osteomyelitis of femur	7
" " " " tibia	1
" " " " os calcis, tuberculous	3
Resection of hip joint for tuberculosis	1
" " ankle joint for tuberculosis	2
" " external cutaneous nerve for neuralgia	1
Revision of suppurative arthritis of knee	1
" " ankle for tuberculosis	3
Secondary amputation of thigh for retraction of soft parts	1
" suture after osteomyelitis of femur	1
Total	65

CAUSES OF DEATH.—First Surgical Division.

Actinomycosis, universal, exhaustion	1
Carbuncle of neck, septicemia	1
Carcinoma of breast, cachexia, exhaustion	1
" " " " (no operation)	1
" " esophagus, exhaustion	1
Empyema, lobar pneumonia, cardiac failure under anesthetic	1
" pulmonary edema	1
" tuberculous, general tuberculosis	1
Exophthalmic goitre, acute thyroidismus	1
Gangrene of both lower extremities, diabetic, exhaustion	1
" " both lower extremities, thrombotic, cardiac failure under anesthetic	1
" " both feet (Reynaud), post-operative insolation	1
" " foot, septicemia	1
" " hand, diabetic coma	1
Hypertrophy of prostate, septicemia (no operation)	1
Osteomyelitis of femur, septicemia	1
Phlegmon of hand, septicemia	1
Septicemia, no discoverable cause	1
Strangulated inguinal hernia, septicemia	1
" femoral hernia, septicemia	1
Stricture of urethra, septicemia	1
Subdural hemorrhage after trauma, septicemia	1
Tuberculosis of hip joint, tubercular meningitis	1

Carcinoma of stomach, pyloric stenosis, chronic nephritis	Operated.	1
Volvulus of sigmoid flexure, acute obstruction, intestinal paralysis, dry peritonitis	"	1
Internal hernia into fossa of Treitz, acute obstruction, intestinal paralysis, purulent peritonitis	"	1
Strangulation of intestine by Meckel's diverticulum, acute obstruction, diffuse peritonitis	Not operated.	1
Lymphosarcoma of intestines and mesenteric glands	Operated.	1
Carcinoma of colon, chronic obstruction, chronic nephritis	"	1
" of colon, chronic obstruction	"	1

		No.
Chronic obliterating appendicitis, septicemia	Operated,	1
Acute gangrenous non-perforating appendicitis, thrombosis of mesenteriolum, septicemia	"	1
" gangrenous non perforating appendicitis, thrombosis of mesenteriolum, pyelophlebitis, septic infarction in the liver	"	1
" perforating appendicitis, circumscribed peritonitis, abscess	"	12
" perforating appendicitis, diffuse purulent peritonitis	"	12
" perforating appendicitis, diffuse purulent peritonitis (admitted moribund)	Not operated.	1
Abscess of liver, single	Operated.	2
" " " multiple	"	2
Cholelithiasis, stones in gall bladder, hydrops of gall bladder	"	1
" stones in gall bladder and cystic duct, empyema of gall bladder	"	2
" stones in common duct, contracted gall bladder	"	1
" stones in common duct, empyema of gall bladder	"	1
Carcinoma of gall bladder and bile ducts (recovery from operation)	"	2
" of head of pancreas, obstructive jaundice (recovery from operation)	"	1
Abscess of clitoris, purulent salpingitis, abscess of broad ligament, septicemia	"	1
Fibroids of uterus (dry peritonitis)	"	1
		49

Renal calculus, pyonephrosis, impacted ureteral calculus, chronic nephritis of opposite kidney, sepsis, 3 operations 1
Ectopia renalis with nephrolithiasis, bilateral pyelonephritis, 2 operations 1
Periodical hydronephrosis of right kidney, atrophic ureter, septic periureteritis and septic peritonitis by continuity, 3 operations 1
Calculous pyonephrosis, perinephritic abscess, fecal fistula, sepsis, death 1
Calculous pyonephrosis, uremia, death 1

ACCIDENT SERVICE—total, 533.

NOTE.—The following report does not include those cases which were referred from the accident room to the general service.

HEAD AND NECK—184.

Cranium, 3.

Concussion of brain	2
Fracture of skull	1

Scalp, 55.

Contusion of scalp	1
Hematoma of scalp	1
Incised wound of scalp	26
Lacerated " " "	25
Punctured " " "	2

Face, 43.

Burns of face, first degree	2
" " " second "	2
Contusion of face	4

Contused wound of lip	1
Incised wound of forehead	13
" " " face	6
" " " lip	2
Lacerated wound of face	6
" " " forehead	6
Rodent ulcer of face	1

Ear, 3.

Impacted cerumen	1
Incised wound of ear	1
Inflammation of middle ear	1

Eyes and Eyelids, 55.

Acute conjunctivitis	9
Foreign body in cornea	9
" " " eye	20
Wound of cornea	1
Contusion of eyelids	3
Incised wound of eyebrow	9
" " " eyelids	3
Lacerated " " "	1

Nose, 10.

Fracture of nose	2
Contusion of nose	3
Foreign body in nose	1
Epistaxis	4

Mouth, Pharynx, and Larynx, 12.

Abscess of tonsil	2
Alveolar abscess	3
Dislocation of inferior maxilla	1
Foreign body in larynx	1
Incised wound of floor of mouth	1
" wound of soft palate	2
Lacerated " " " "	1
Salivary cyst	1

Neck, 3.

Burn of neck	1
Furuncle of neck	1
Torticollis	1

Upper Extremity—259.

Shoulder, 13.

Abscess of axilla	1
Contusion of shoulder	5
Dislocation of shoulder joint	3
Fracture of clavicle	2
Incised wound of shoulder	1
Subluxation of shoulder joint	1

Arm and Forearm, 36.

Abscess of arm	1
Burns of forearm	1
Contused wound of forearm	1
Contusion of arm	11
" " elbow	6
Dislocation of ulna	1
Foreign body in arm	1
Fracture of forearm (Colles')	4
" " humerus	1
" " radius	1
Incised wound of arm	5
Laceration of ligaments of elbow joint	1
Phlegmon of forearm	1
Punctured wound of arm	1

Wrist, 16.

Abscess of wrist	1
Contusion of wrist	4
Distortion " "	4
Incised wound of wrist	6
Lacerated " " "	1

Hand, 72.

Burn of hand, first degree	9
" " " second "	3
Contused wound of hand	5
Distortion of hand	2
Foreign body in hand	5
Incised wound of hand	18
Lacerated " " "	12
Phlegmon of hand	14
Punctured wound of hand	3
Tenosynovitis of hand	1

Fingers, 122.

Bullet wound of finger	1
Contused wound of finger	10
Dislocation of phalanges	5
Foreign body in finger	10
Fracture of finger	3
Incised wound of finger	31
Lacerated " " "	32
Phlegmon of finger	28
Traumatic amputation of finger	1

THORAX—6.

Thorax, 6.

Abscess of breast	1
Contusion of ribs	4
Empyema	1

ABDOMEN—3.

Abdomen, 3.

Foreign body in alimentary tract	1
Incised wound of abdomen	1
Renal colic	1

LOWER EXTREMITY—69.

Thigh, 5.

Abscess of thigh	1
Contusion of thigh	2
Incised wound of thigh	1
Lacerated " " "	1

Knee, 5.

Distortion of knee	1
Lacerated wound of knee	3
Prepatellar bursitis	1

Leg, 24.

Burn of leg	1
Contusion of leg	2
Eczema " "	2
Fracture " " (Pott)	2
Incised wound of leg	10
Lacerated " " "	2
Osteomyelitis of tibia, chronic	2
Rupture of varicose veins of leg	1
Ulcer of leg	2

Ankle, 11.

Contusion of ankle	1
Distortion " "	9
Incised wound of ankle	1

Foot, 14

Distortion of foot	1
Fracture of tarsus	1
Phlegmon of foot	3
Punctured wound of foot	6
Synovitis of foot	3

Toes, 10.

Contusion of toe	1
Dislocation of toe	1
Gangrene " "	1
Incised wound of toe	1
Lacerated " " "	2
Phlegmon of toe	4

MISCELLANEOUS—12.

Acute articular rheumatism	1
" gonorrhea	1
Alcoholism	1
Contused wound of sacrum	1
Contused wound of scrotum	1
Convulsions	1
Erysipelas	5
Hysteria	1

XIX.

REPORT OF THE SECOND SURGICAL DIVISION.

By Howard Lilienthal, M.D.,

ATTENDING SURGEON.

Joseph Wiener, Jr., M.D., Charles A. Elsberg, M.D.,

ADJUNCT ATTENDING SURGEONS.

The Second Surgical Division has treated during the year 527 cases of surgical disease, of which 475 were operated upon. These figures do not represent the entire work done, however, for the reason that synchronous operations have been for the most part regarded as a single one unless two distinct regions of the body were operated upon at the same sitting. Intravenous saline infusion and such procedures as cystoscopy and even ureteral catheterization have not been counted as operations, though strictly, perhaps, coming under that head.

We find that most of the deaths which occurred were in cases of desperate acute disease, and it is but fair to note that practically no patient has been refused the chance for life which an operation promised whenever death without it became a matter of apparent certainty. Thus, patients with acute septic peritonitis have in almost all instances been operated upon without fear that our statistics might be unfavorably criticised; and among these patients a sufficient number have been saved to reward us well for all our labor and anxiety.

DISEASES TREATED IN THE SECOND SURGICAL DIVISION.

TOTAL—527.

	Operation.	No operation.	Cured.	Improved.	Unimproved.	No treatment.	Died.	Totals.
Cranium—7.								
Necrosis of skull	1		1					1
Chronic hydrocephalus	1						1	1
Traumatic meningitis	1						1	1
Fracture of vault (multiple)	1						1	1
Subdural hemorrhage		1		1				1
Concussion of brain	1						1	1
Tumor " "	1						1	1
Face and Mouth—24.								
Lips—9.								
Epithelioma of	1		1					1
Cellulitis of, endocarditis, sepsis	1						1	1
Nevus of lip	1		1					1
Harelip	3		1	2				3
" double	1						1	1
" and cleft palate						1		1
Hypertrophy of lip	1		1					1
Nose—1.								
Deformity of		1			1			1
Oral Cavity—5.								
Tongue, epithelioma of	1		1					1
Cleft palate	2		1	1				2
Hard palate, gumma of		2		2				2
Superior Maxilla—1.								
Sarcoma of	1						1	1
Inferior Maxilla—8.								
Osteomyelitis of	2		2					2
" " pyemia	3						3	3
Periostitis of	1		1					1
Necrosis of	1	1	1	1				2
Neck—20.								
Abscess of	5		5					5
" " general sepsis	1						1	1
" " submaxillary	5		4	1				5
Cellulitis of	1		1					1
Adenitis of, tuberculous	4		4					4
Lymphosarcoma of	2		2					2
Goitre, cystic	1		1					1
Subhyoid sinus	1			1				1

	Operation.	No operation	Cured.	Improved.	Unimproved.	No treatment.	Died.	Totals.
Pharynx—2.								
Peritonsillar abscess	2		2					2
Shoulder—7.								
Abscess of	1		1					1
Lipoma of	2		2					2
Synovitis of, traumatic		1		1				1
Clavicle, deformity of		1				1		1
" osteomyelitis of	1		1					1
Sterno-clavicular joint, arthritis of	1		1					1
Axilla—7.								
Abscess of	4		4					4
Adenitis of, tuberculous	2		2					2
Recurrent carcinoma of	1		1					1
Arm—4.								
Cellulitis of	1		1					1
Traumatic ulcer of	1		1					1
Humerus, fracture of		1	1					1
" " " anatomical neck		1		1				1
Forearm—7.								
Sebaceous cyst of	1		1					1
Radius, osteomyelitis of	1		1					1
Elbow, arthritis of, tuberculous	1		1					1
" " " " fracture of olecranon	1			1				1
" posterior dislocation	1	1	2					2
Olecranal bursitis	1		1					1
Hand—14.								
Cellulitis of	4	1	5					5
" " diabetic	1						1	1
" " with osteomyelitis of phalanges	3		2	1				3
Thumb, cellulitis of	2		2					2
" sarcoma of	1		1					1
Trigger finger	1		1					1
Finger, laceration of	1		1					1
Thorax—11.								
Bullet wound of	1		1					1
Empyema of	3	1	3	1				4
" " secondary operation	3		3					3
Ribs, tuberculosis of	2			2				2
Intercostal neuralgia	1		1					1
Back—6.								
Carbuncle of	2		2					2
Cellulitis of	1		1					1
Dermoid cyst of	1		1					1
Contusion of		1	1					1
Lumbar abscess	1		1					1

	Operation.	No operation.	Cured.	Improved.	Unimproved.	No treatment.	Died.	Totals.
Lumbo-Sacral Region—1.								
Psoas abscess	1	..	..	1	..	..	..	1
Breast—16.								
Abscess of, multiple	7	..	6	1	..	..	..	7
Inflammation of, chronic	1	..	1	..	..	..	..	1
Fibroma of	2	..	2	..	..	..	..	2
Fibrosarcoma of	1	..	1	..	..	..	..	1
Carcinoma of	4	..	4	..	..	..	..	4
" " recurrent	1	..	1	..	..	..	..	1
Abdominal Wall—3.								
Abscess of	2	..	2	..	..	..	..	2
Burns of	..	1	1	..	..	..	..	1
Stomach and Esophagus—4.								
Esophagus, carcinoma of	1	1	..	..	1	..	1	2
" foreign body in	1	1	1	..	..	1	..	2
General Abdominal Cavity—131.								
Liver—3.								
Abscess of	1	..	..	..	..	..	1	1
Echinococcus cyst and abscess of	1	..	..	..	..	..	1	1
Carcinoma of	1	..	..	..	..	..	1	1
Gall Bladder and Ducts—13.								
Gall bladder, carcinoma of	..	1	..	..	1	..	..	1
" " " " cholelithiasis	2	..	..	..	1	..	1	2
Cholecystitis	..	1	..	..	..	1	..	1
Cholelithiasis	1	3	3	1	..	..	..	4
Ducts, carcinoma of	2	..	..	..	..	..	2	2
Common duct, cholelithiasis	2	1	1	..	1	..	1	3
Spleen—1.								
Splenic artery, multiple aneurism of	1	..	..	..	..	..	1	1
Pancreas—3.								
Hemorrhagic pancreatitis	1	..	1	..	..	..	..	1
Acute pancreatitis	..	1	1	..	..	..	..	1
Carcinoma of	1	..	..	..	..	..	1	1
Intestines—13.								
Sarcoma of	1	..	..	..	..	..	1	1
Gastro-duodenitis	..	1	1	..	..	..	..	1
Colon, carcinoma of	2	..	..	..	..	..	2	2
" " " intestinal obstruction	1	..	1	..	..	..	..	1
" ulceration of, general peritonitis	1	..	..	..	..	..	1	1
Fecal fistula	1	..	1	..	..	..	..	1
Intestinal obstruction after appendicitis	1	..	1	..	..	..	..	1
" " from adhesions	2	..	..	..	..	..	2	2
Intussusception	3	..	..	..	..	..	3	3

General Abdominal Cavity—*Continued.*	Operation.	No operation.	Cured.	Improved.	Unimproved.	No treatment	Died.	Totals.
Other Abdominal Diseases—98.								
Appendicitis, acute catarrhal	9	3	10	2	..	..	..	12
" " " ovarian cyst	2	..	2	..	..	..	..	2
" subacute catarrhal	2	..	2	..	..	..	..	2
" chronic "	13	1	13	1	..	..	..	14
" " sepsis, meningitis	1	..	..	..	..	..	1	1
" abscess	19	..	19	..	..	..	..	19
" gangrenous	15	..	11	..	..	..	4	15
" " diffuse peritonitis	24	..	7	..	..	..	17	24
" " subphrenic abscess	1	..	1	..	..	..	..	1
" tuberculous	1	..	1	..	..	..	..	1
Extraperitoneal abscess	1	..	..	..	..	..	1	1
Traumatic peritonitis	1	..	..	..	..	..	1	1
Abdominal tumor	..	1	..	..	1	..	..	1
Omentum, carcinoma of	..	1	..	..	1	..	..	1
" intra-abdominal torsion	1	..	1	..	..	..	..	1
Retroperitoneal abscess	1	..	1	..	..	..	..	1
" sarcoma	1	..	..	..	..	..	1	1
Herniæ—49.								
Inguinal, indirect, reducible	16	1	16	..	..	1	..	17
" " " double	8	..	8	..	..	..	..	8
" congenital, reducible	6	..	6	..	..	..	..	6
" " undescended testicle	2	..	2	..	..	..	..	2
" reducible, hydrocele	1	..	1	..	..	..	..	1
" irreducible	1	..	1	..	..	..	..	1
" " congenital	1	..	1	..	..	..	..	1
" " strangulated	3	..	1	..	..	..	2	3
Femoral, reducible	2	..	2	..	..	..	..	2
" strangulated	1	..	1	..	..	..	..	1
" " gangrene of intestine	2	..	1	..	..	..	1	2
Umbilical, reducible, congenital	1	..	1	..	..	..	..	1
" strangulated, gangrene of intestine	1	..	..	..	..	..	1	1
" pneumonia	1	..	..	..	..	..	1	1
Ventral	1	..	1	..	..	..	..	1
" double	1	..	1	..	..	..	..	1
Genito-Urinary Diseases—71.								
Kidney—9.								
Movable kidney	2	..	2	..	..	..	..	2
Perinephritic abscess	1	..	1	..	..	..	..	1
Renal hemorrhage	..	1	..	1	..	..	..	1
" calculus, pyelonephritis	1	..	1	..	..	..	..	1
Pyelitis	..	1	..	..	1	..	..	1
Pyelonephritis	2	1	2	..	1	..	..	3
Bladder—11.								
Papilloma of	1	..	..	..	..	..	1	1
Carcinoma of, sepsis	..	1	..	..	..	..	1	1
Calculi of	6	..	6	..	..	..	..	6
Cystitis, acute	..	1	..	1	..	..	..	1
Suprapubic fistula	..	2	..	1	1	..	..	2

	Operation.	No operation.	Cured.	Improved.	Unimproved.	No treatment.	Died.	Totals.
Genito-Urinary Diseases—*Continued.*								
Prostate—13.								
Abscess of	2	..	2	..	..	..	..	2
Inflammation of	1	..	1	..	..	..	..	1
Sarcoma of	..	1	..	1	..	..	..	1
Tumor of	1	..	..	..	..	..	1	1
Hypertrophy of	1	4	1	4	..	..	..	5
" " chronic sepsis	2	1	..	..	..	..	3	3
Seminal Vesicles—3.								
Inflammation of	..	3	1	2	..	..	..	3
Penis and Urethra—16.								
Urethra, gonorrheal inflammation of	..	3	3	..	..	..	..	3
" stricture of	3	1	3	1	..	..	..	4
" " " retention of urine	..	2	..	2	..	..	..	2
" fistula	..	2	..	..	1	1	..	2
" tumor of	1	..	1	..	..	..	..	1
Periurethral abscess	3	..	3	..	..	..	..	3
Phimosis	1	..	1	..	..	..	..	1
Testicle and Scrotum—19.								
Scrotum, abscess of	1	..	1	..	..	..	..	1
Epididymitis, acute	..	2	2	..	..	..	..	2
" and orchitis	1	1	2	..	..	..	..	2
Hydrocele	6	..	6	..	..	..	..	6
" double	1	1	1	1	..	..	..	2
Varicocele	4	..	4	..	..	..	..	4
Sarcoma of testis	1	..	1	..	..	..	..	1
Testis, tuberculosis of	..	1	..	1	..	..	..	1
Rectum and Anus—64.								
Hemorrhoids	30	..	29	1	..	..	..	30
Rectum, ischio-rectal abscess	3	1	3	1	..	..		4
" carcinoma of	..	2	..	..	..	2	..	2
" stricture of	..	1	..	1	..	..	..	1
" atresia of	2	..	1	..	..	..	1	2
" prolapse of	..	1	..	1	..	..	..	1
Anus, ulcer of	1	..	1	..	..	..	..	1
" fissure of	3	..	3	..	..	..	..	3
" fistula of	16	..	12	4	..	..	..	16
" " " ischio-rectal abscess	4	..	4	..	..	..	..	4
Lower Extremities—67.								
Pelvis—1.								
Pelvic adenitis, suppurative	1	..	1	..	..	..	..	1
Groin—2.								
Adenitis of	2	..	2	..	..	..	..	2
Hip—7.								
Tuberculous inflammation of	2	..	1	1	..	..	..	2

	Operation.	No operation.	Cured.	Improved.	Unimproved.	No treatment.	Died.	Totals.
Lower Extremities—*Continued.*								
Hip—Continued.								
Trauma of	1	1	2					2
Old ankylosis of		1			1			1
Congenital dislocation of, double		1			1			1
Periarticular abscess of	1		1					1
Thigh—17.								
Wound of	1		1					1
Abscess of	2		2					2
" " sepsis	1						1	1
Cellulitis of	1		1					1
Femur, intracapsular fracture of		1	1					1
" fracture of shaft		4	4					4
" osteomyelitis of, acute	3		1				2	3
" " " chronic	2	1	2	1				3
" fibrosarcoma of	1		1					1
Patella—3.								
Suppurative prepatellar bursitis	3		3					3
Knee—4.								
Tuberculous arthritis of	1		1					1
Arthritis of, suppurative	1		1					1
Sinuses of, tuberculous	1			1				1
Hemarthrosis of	1		1					1
Leg—18.								
Gangrene of, endarteritis		1					1	1
Ulcer of	2	1	3					3
Sinuses of	1		1					1
Varicose veins of		3				3		3
Hematoma of		1	1					1
Genu valgum	1		1					1
Tibia, osteomyelitis of	3		3					3
" sarcoma of	3		3					3
Fibula, fracture of		1	1					1
" and tibia, fracture of		1	1					1
Ankle—2.								
Arthritis, tuberculous	1		1					1
Fracture of		1	1					1
Foot—13.								
Cellulitis of	3		3					3
Gangrene of, Reynaud's disease	3		3					3
" " carbolic acid	1		1					1
Pes planus	1	1	1	1				2
Talipes equino-varus	1			1				1
Ulcer of	1	2	3					3
Miscellaneous—14.								
Pyemia	2		1	1				2

Miscellaneous—*Continued.*	Operation.	No operation.	Cured.	Improved.	Unimproved.	No treatment.	Died.	Totals.
Fecal impaction	..	1	1	..	..	..	..	1
Lacerated perineum	1	1	1	1	..	..	..	2
Neurasthenia	..	1	..	..	..	1	..	1
Ovarian cyst, twisted pedicle	1	..	1	..	..	..	..	1
Hematocolpos	2	..	1	..	..	..	1	2
Acute dermatitis	..	1	1	..	..	..	..	1
Syphilis	..	1	..	1	..	..	..	1
Aneurism of aorta	1	..	..	..	..	..	1	1
Hemorrhagic pleurisy	1	..	1	..	..	..	..	1
Subphrenic abscess	1	..	1	..	..	..	..	1

REPORT ON THE OPERATIONS PERFORMED IN THE SECOND SURGICAL DIVISION.

OPERATIONS, 475; DEATHS, 71.

OPERATIONS ON THE CRANIUM AND ITS CONTENTS, THE NERVES, AND THE SPINAL CANAL—total, 6; deaths, 4.

	Totals.	Deaths.
Chiselling away necrosed bone from inferior surface of petrous portion of temporal bone	1	1
Internal drainage for chronic hydrocephalus	1	1
Exploratory craniotomy for tumor of cerebellum	1	1
Lumbar puncture for traumatic meningitis	1	1
Craniotomy and aspiration for traumatic subdural hemorrhage	1	1
Resection of intercostal nerve for neuralgia	1	

The omega-shaped osteoplastic flap formed with the help of the electric drill was used by preference in entering the unfractured skull. In no instance was the trephine employed. No antiseptic chemical was used about the brain. The large number of deaths may be ascribed to the desperate character of the cases. In most instances operation was undertaken as a forlorn hope.

Necrosis of Inferior Surface of Petrous Portion of Temporal Bone; Operation; Cure.—John H., 56 years of age, was admitted on January 11, 1900, having been operated upon three times within the year, first for mastoiditis following middle-ear inflammation and twice for the closure of a sinus which fol-

lowed the original operation. The two latter attempts were unsuccessful and a small sinus remained, which occasionally discharged quite a quantity of pus, with subsequent temporary relief of headache and dizziness which appeared when the sinus did not discharge. There were no chills and no vomiting. The right ear was normal, but the left showed evidences of middle-ear catarrh, though the membrane was complete. There was considerable tenderness over the defect in the bone left after former operations.

On January 16, in general narcosis, the old cicatrix was excised while a probe was steadied in the sinus. The tract led inwards, forwards, and upwards from the place where the tip of the mastoid had been, and there the probe encountered bare bone. An extensive horizontal incision, together with a vertical one joining it in its anterior part, permitted of an excellent exposure. With a gouge and sharp spoon, carious bone was removed from the lower surface of the petrous portion of the temporal and the wound packed. Healing was extremely rapid and the patient was discharged perfectly well twenty-three days later, having gained many pounds in weight.

Chronic Hydrocephalus; Operation; Death.—William D., 6 months old, hydrocephalic from birth, was admitted on December 26, 1899. The occipito-frontal circumference had increased one inch during the past month. On admission the child was found to be hydrocephalic to a very marked degree, the head being so large that he could not sit up. The intelligence was good. From the base of the nose to the occipital protuberance was, circumferentially, 22½ inches. Diameter antero-posterior, 14½ inches; from "ear to ear" over vertex, 14¼ inches. On December 30 an operation was undertaken to establish communication between the arachnoid space and the distended ventricles. Omega-shaped incision made over the right occipital region, the pedicle downward. The bone flap was very thin and was cut with scissors. Opening the dura, there was great bulging from intracerebral pressure. The tentorial surface was exposed by raising the posterior portion of the cerebrum with blunt retractor. The lateral ventricle was tapped by an incision upward and forward from a point on the tentorial surface about two inches from the posterior extremity of the occipital lobe and midway between the internal and external margins of the lobe. The ventricle was reached at a depth of about one-third inch from the surface and about 4 ounces of clear fluid evacuated. A small drain of folded gutta-percha tissue was introduced, its extremity being split and folded to either side, so that it rested on the tentorium and could not become buried in the cerebral substance. The lobe was allowed to fall back on the tentorium and the wound closed, with gauze drainage.

This child lived until February 15, 1900, or about forty-seven days. There seemed to be some improvement at first, but there was a more or less continual elevation in temperature, later vomiting and exophthalmos, and finally such a reaccumulation of fluid that tapping was resorted to. The operation seems to be a scientific one and it is hoped that another attempt may be more successful.

Tumor of Cerebellum; Operation; Death.—Harris H., a man of about 32 years of age, was transferred from the medical service on October 5, 1900. For previous history see report in full by Dr. H. W. Berg in this volume.

Operation. Chloroform. A large omega scalp and bone flap, its base downward, was made over the left occipital region, the electric drill being used for section of the skull. The dura was normal in appearance. The dura was freely incised and an excellent exposure of the cerebellum obtained with plenty of room for manipulation. Hemorrhage was insignificant. At first no pulsation was noted. Aspiration through the dural opening was done, the needle pointing forward and inward for about an inch and three-quarters. The needle gave sensation as if it had encountered bone, probably the petrous portion of the temporal. Nothing was withdrawn on aspiration. A second aspiration downward and inward withdrew a small amount of bloody fluid, and a third, somewhat deeper, gave about three drachms of blood-tinged fluid. It was thought that this might have come from a cyst. The cerebellum was now incised and the finger gently inserted for exploration, pulsation having appeared in the brain. The exploration was negative and the operation was concluded by an attempt to reach the collection of fluid with a grooved director. This was impossible, so the dural wound was closed with fine silk sutures and the flap returned and the wound dressed with drainage. During the operation the pulse did not change and no twitchings were observed. After the operation there was great shock, with small and rapid pulse, and in spite of stimulation the patient died about eight hours after leaving the operating room. If there is a criticism which might be made upon the surgical conduct of this case, it is that, the diagnosis having been well established by the neurologist, the exploration of the cerebellum should have proceeded until some satisfactory explanation of the symptoms was encountered. Had the cerebellar tissue been cut away a little farther the tumor must have been exposed and might have been removed, though it is probable that in the case under discussion the life of the man would not have been prolonged. The patient's general condition was poor, and he succumbed in spite of the fact that the surgical trauma, as well as the hemorrhage, was far less than would necessarily have caused a fatal ending.

Traumatic Extradural Hemorrhage; Meningitis; Death.—Anna D., 18 months old, fell from a first-story window five days before admission, striking on the left side of her head. She did not become unconscious, but vomited and had some bleeding from the nose. The following day the patient felt better and was up and about. On the third day she began to complain of severe headache and vomited several times. Four days after the accident the child had a convulsion lasting fifteen minutes, the convulsive movements being limited to the left side of the body. When admitted on May 28, 1900, the patient had all the signs of meningitis; she was comatose, her pupils were dilated and did not react to light, her neck and extremities were rigid, the reflexes exaggerated. Temperature 104.6°, pulse 140, respiration 62. By lumbar puncture a small amount of bloody fluid was obtained. The patient's condition was so bad that no operation was attempted; she grew steadily worse and died on May 31, eight days after the accident.

Fracture of Skull; Subdural Hemorrhage; Exploratory Craniotomy; Death.—Benny C., 3 years old, admitted August 29, 1900. The only history obtainable was that four days before admission the child had fallen from a second-story window. Following the fall there were said to have been twitchings in all four extremities. Examination of the stuporous child showed a large ecchymotic area over the right temporal and mastoid regions, also in front of the auricle on the same side. Pressure over this region caused clonic spasm of the upper extremities. There was some ecchymosis and edema over the left temporal and occipital regions. Pressure over this region caused twitching of the right arm and coordinate movements of the left leg. The pupils were equal and reacted sluggishly to light. The examination of the eyes failed to show any increase of intracerebral pressure. There was evidence of a pre-existing nose bleed, but no sign of any bleeding from the ears. The heart's action was extremely rapid. The abdomen was not distended. The left knee jerk was markedly increased, the right normal. The right triceps jerk was increased, the left normal. There was no reaction to pain in any part of the body. On admission, temperature 103.2°, pulse 162, respiration 42. On account of a marked kyphosis in the upper cervical region the possibility of a fracture or dislocation of one of the vertebræ was thought of. Without anesthesia, a vertical incision was made along the spines of the upper cervical vertebræ. Nothing abnormal was found and the incision was closed. For the next two days the patient was observed in vain for the development of any localizing symptoms. As the case was considered hopeless without interference, it was finally decided to explore the cranium in the right temporal region, as that was the seat of the

greatest injury to the scalp. Without anesthesia, a large ∩-shaped flap of bone was raised from the temporal region on the right side. The dura was not congested; it was opened and no pulsation of the brain was noticed. The brain was aspirated in several directions with negative result. The lateral ventricle was next aspirated, and after the withdrawal of one and one-half drachms of clear fluid the brain began to pulsate. The dura was closed with catgut sutures, and the skin flap with silkworm gut, a small drain having been inserted down to the dura. Before operation, temperature 104.4°, pulse 180, respiration 72. The child remained in the same deep coma and died three and one-half hours after operation. Autopsy showed multiple fractures of the vault and a subdural hemorrhage.

OPERATIONS UPON THE FACE, ORAL CAVITY, AND JAWS—total, 13; 1 death.

	Totals.	Deaths.
Excision of epithelioma and plastic of cheek	1	
Nevus of face, cauterization	1	
Excision of nevus of lip	1	
" " epithelioma of lip	1	
Cheiloplasty for harelip	3	
" " " double	1	1
" " hypertrophy of lip	1	
Excision of epithelioma of tongue	1	
Uranoplasty	1	
" and staphylorrhaphy	1	
For periostitis of lower jaw	1	

In both cases of cleft palate the opening was very wide, so that even with the widest possible flaps minute spaces were left between the edge of the bony roof of the mouth and the edge of the muco-periosteal flap. No fistulæ resulted from this, however. In suturing, silk dipped in compound tincture of benzoin was employed. This rendered it extremely easy to tie, even the single knot holding firmly. Tiny silver plates with double perforations were made, cutting the silver from a dime which had been hammered out flat.

A tuberculous ulcer of the tongue was treated successfully by scraping and the application of lactic acid. (See page 395, history of patient with tuberculous arthritis of elbow, etc.)

Cleft Palate (Complete); Uranoplasty and Staphylorrhaphy; Cure.—Solomon D., 6 years old, was admitted May 9, 1900, with complete congenital cleft palate with a very wide fissure. The defect involved the entire soft palate and about half of the hard, but there was not harelip or deformity of the intermax-

illary bones. On May 10 operation with the dependent head. Chloroform. Whitehead's gag. Muco-periosteal flaps with generous relaxing incisions parallel with the line of the teeth. Approximation of uranoplastic wound by means of silver plates and silk, the staphylorrhaphy with silk previously dipped in compound tincture benzoin. Rectal alimentation for three days. The little patient accidentally got a piece of ice in his mouth and tore out one of the sutures, so on the eighth day another stitch was put in. On May 23, thirteen days after the first operation, the patient was discharged, the wound being closed throughout most of its extent, but still open for a short distance at the junction of the hard and soft palate. [*Note.*—The fistula decreased in size, and in November, without admission to the hospital, a single stitch was put in and the cleft entirely closed with a final perfect result.]

Cleft Palate; Uranoplasty; Cure.—Theresa O., 3 years old, had wide median cleft of hard and soft palate. Admitted March 28, operated upon March 29, 1900. Uranoplasty. The edges of the cleft were not pared, but were split without the removal of tissue; incisions on each side near the alveolar border; muco-periosteal flaps raised and their edges united in the median line by means of silk and plate sutures. The child was nourished by rectum for several days. The wound healed by primary union and the patient was discharged on April 4, to return at a later date for staphylorrhaphy.

Acute Osteomyelitis of the Inferior Maxilla; Profuse Hemorrhages from the Mouth; Operation; Death.—F. T., 2 years old, transferred from the Medical Division September 11, 1900. Operation September 11. Right inferior maxilla exposed and found necrotic over the greater part of its extent; bleeding from bone stopped with wax; wound packed; dry dressing. After the operation the child had only a few slight hemorrhages from the mouth; it grew steadily weaker and never recovered from the profound anemia, death occurring on July 18.

Autopsy (limited) revealed suppurative osteomyelitis of the jaw.

OPERATIONS ON THE ESOPHAGUS, LARYNX, AND TRACHEA—total, 4; 1 death.

	Totals.	Deaths.
Thyroidectomy, partial	1	
Tracheotomy for edema of glottis	2	1
Esophagotomy, external, for foreign body	1	

There were two cases in which tracheotomy, as an operation of emergency, had to be performed. Both were successful so far as the immediate saving of life was concerned, and one patient made a full recovery.

The history of a rare condition, that of lymphatic edema of the neck due to carcinomatous lymph nodes, has been briefly abstracted. The method of relief by firm bandaging is particularly interesting, since it seemed from the enormous extent of the swelling that the patient must perish eventually on account of the impediment to respiration.

Angina Ludovici; Sepsis; Tracheotomy; Operation; Death.—Morris K., about 30 years old, was admitted on February 9, 1900, with a hard, brawny, non-fluctuating swelling of the right side of the neck. There had been no history of nose, throat, or ear trouble. The disturbance had begun four days before his coming to the hospital, with pain and swelling at the angle of the jaw. In spite of incision by the attending physician, the symptoms became more severe, and on examination at the hospital the case was one of great urgency. The jaws could scarcely be separated and only liquids could be swallowed, but dyspnea was not marked. Operation was at once undertaken, but scarcely had the patient inhaled a few whiffs of nitrous oxide when he ceased breathing because of laryngeal spasm and stenosis, and a hurried tracheotomy had to be performed. Chloroform was now administered and the swelling freely incised with the evacuation of sero-pus. The wound was packed and the trachea tube left in place. The patient continued to suffer from acute sepsis, in spite of stimulation, and a second incision made on February 10. On the third day the temperature rose to 106° and the pulse weakened. Death occurred about fifty hours after the first operation.

Autopsy, limited to inspection through the wound, revealed the following: Larynx: Small amount of mucus; false vocal cords slightly swollen; slight edema of the rest of the mucous membrane. Tracheotomy wound: This included the cricoid cartilage and the two upper tracheal rings. The thyroid isthmus was divided; no blood in the trachea. Cavity opened by incision anterior to the sterno-mastoid extended almost to the larynx at the ventricular bands. Cavity opened by incision behind the sterno-mastoid extended to the tip of the mastoid process, which was not involved. Neither cavity contained pus. The glands were moderately enlarged.

Cervical Abscess; Asphyxia; Tracheotomy; Incision of Abscess; Pneumonia; Recovery.—Pauline O., 6 months old, admitted March 31, 1900. Three weeks before admission child had had pneumonia. Two weeks later the attending physician noticed an abscess developing on the left side of the neck. The mother of the infant refused to bring it to the hospital until the abscess had become very large and was interfering with respiration. On admission the face and ex-

tremities were deeply cyanosed and the child was barely gasping. The child was immediately taken to the operating room, where, without any preparation, a low tracheotomy was very rapidly performed. Artificial respiration was carried on for five minutes before the child breathed of its own accord. The deep cervical abscess on the left side was then incised and a large amount of pus evacuated. The tracheotomy tube was left in place. April 1, temperature 103.6°, pulse 132. On April 3, as the abscess did not drain well, the incision was extended to the base of the neck, and drainage tubes were inserted to the floor of the mouth and to the posterior wall of the pharynx. April 5: A slight consolidation at the apex of the left lung; temperature 98°, pulse 136, respiration 28. Breathing was at times labored; there was a slight bulging of the left pharyngeal wall into the mouth. April 6: Temperature 102.6°. The tracheotomy tube was removed, but had to be reinserted on account of dyspnea. April 8, temperature 101.8°, pulse 148. Tracheotomy tube removed. Thereafter recovery was uninterrupted, and child was discharged on April 29, with the tracheotomy wound completely closed and the abscess cavity almost healed.

Metastatic Carcinoma of Cervical Glands; Operation; Extensive Lymphedema of Neck and Chest Wall; Recovery.—Hannah R., 72 years old, had had her left breast and axillary glands excised for carcinoma one year before admission. The other breast had been removed at an earlier date for the same disease. She had had several attacks like the present, during which her neck and chest wall became red, swollen, and painful. On admission the left side of the patient's neck was red and swollen, and on the same day, July 28, 1900, an incision was made into the swelling, but the tissues were found to be only edematous. The wound was drained and a wet dressing applied. For the following few days the patient's temperature fluctuated between 100° and 102.8°. The edema gradually spread down the chest and around the neck and down the back. The skin was red, tender, and pitted on pressure. There was a profuse serous discharge from the wound. The chest was strapped and a firm pressure bandage applied, which was reapplied whenever it became loose. Under this simple treatment the edema gradually subsided, the temperature became normal, and the wounds healed, so that the patient could be discharged well, except for the carcinoma, on August 18.

A case of esophagotomy for foreign body was greatly facilitated and the patient's life was probably saved by the knowledge of the exact location of the object, a coin, rendered possible by the X-rays.

Foreign Body in Esophagus; External Esophagotomy; Cure.—Rosie B., 2½ years old, was admitted January 20, 1900. She had swallowed a cent six days before and it could be plainly seen with the fluoroscope impacted above the cricoid cartilage, lying with its surfaces front and back. There was almost complete dysphagia, even water being swallowed with great difficulty. Soon after admission external esophagotomy was performed under chloroform. The coin was easily palpated and was removed through a very small incision in the esophagus, which stretched to allow the passage of the foreign body and then immediately contracted. There was no suture, but gauze was laid against the wound of the gullet. There was no leakage for three or four days, when the gauze was removed. After this, leakage occurred and continued for about ten days. The child was discharged cured, with wound healed, sixteen days after the operation. During this time the patient passed through an attack of German measles.

AMPUTATIONS—12.

	Totals.		Totals.
Hip	2	Leg	2
Thigh	4	Toe	2
" secondary	1	Finger	1

Amputation at the hip joint was performed twice—once for tuberculosis, after attempts to save the limb by excision of the hip had failed, and once for sarcoma of the head of the tibia and the soft parts adjacent. Both patients recovered. In both, however, there was severe hemorrhage at the time of operation, and full stimulation, together with saline intravenous infusion, had to be resorted to to save them. Wyeth's elastic constriction was not made use of in either operation, but from experience with the method in two other cases the writer would recommend that it be employed whenever possible.

Two amputations of the leg at the point of election, for Reynaud's disease, were performed. Lateral flaps were made. In one case suture was employed, while in the other the flaps were approximated by the zinc rubber plaster. Healing in the sutured case was slightly retarded by narrow marginal necrosis, while the plastered one healed by primary adhesion.

Tuberculosis of Hip; Excision; Amputation; Recovery.—March 27, 1900, Louis K., 27 years old, was admitted. There had been long-standing hip disease with the formation of sev-

eral sinuses. For a year and a half had been wearing a traction splint. His condition on admission was poor, but there were no signs of tuberculosis elsewhere. Ankylosis was practically complete. March 31, under chloroform, the hip was excised through an incision behind the trochanter. Gigli's wire saw was used to divide the bone just below the greater trochanter. Several sinuses were laid open and scraped, others drained with tubes. The head of the femur was almost destroyed by caries. Orthoform gauze packings were put in and only the lower portion of the wound closed with a few strips of zinc plaster. Extension was applied. The suppurative process was not checked by this operation and it became necessary to revise. Even then the general health of the patient continued to deteriorate. There was constant fever and profuse suppuration. On May 8 nitrous oxide, then ether was administered and the femoral artery was ligated. The soft parts were then divided, severing the entire limb from the body. The amputation was atypical, because so much tissue which should have been used for flap was beyond recovery. Much blood was lost, necessitating intravenous infusion. The entire wound was packed. Recovery was complete and the patient was discharged August 26, having gained many pounds in weight. Several curettings were necessary during convalescence.

Osteosarcoma of Tibia; Amputation at Hip Joint; Recovery. —Abie L., 9 years old, was admitted on January 27, 1900, with a tumor of the head of the right tibia involving the soft parts and recurring after the removal of a similar growth some months before. On account of the rapid and rather extensive recurrence, amputation at the hip was thought proper, and after a pathological examination of a bit of the tumor excised under local anesthesia, the operation was performed on February 13. A preliminary abdominal section was made, so as to permit of digital pressure upon the common iliac artery for the control of hemorrhage. Then a circular skin and muscle flap, with a vertical incision from the trochanter joining the circumferential one at its outer aspect, was made, the hip exarticulated, and the wound closed by sutures through skin and muscle with silkworm gut, and cutaneous sutures of silk. A drain of gauze and rubber tissue was passed into the acetabulum. There was a great deal of hemorrhage, in spite of the intra-abdominal compression, due, I am forced to believe, to a high division of the iliac or some similar anomaly. Quick work was necessary to prevent a fatality at the operation, and considerable stimulation after infusion was required. The shock continued for about twenty-four hours, after which there was a quick recovery. Primary union occurred and the patient was discharged well on April 1.

OSTEOTOMIES—1.

	Total.
Of femur, for genu valgum	1

FOR OSTEOMYELITIS—total, 32; deaths, 5.

Primary Operations—16.

	Totals.	Deaths.
Inferior maxilla	5	2
Clavicle	1	
Radius	1	
Femur	3	2
Femur (Schede's operation)	1	
Tibia	5	1

Secondary Operations—6.

	Totals.	Deaths.
Fibula	2	
Femur	1	
Tibia	2	
Inferior maxilla	1	
Incision and curetting for sinuses leading to bones	10	

RESECTIONS—total, 16; 1 death.

	Total.		Totals.
Metatarsal bone	1	Coccyx	1

Thorax, Resection of Ribs—14.

	Totals.	Deaths.
For empyema	4	
" " secondary	7	
" abscess of lung	1	1
" tuberculosis of rib	2	

OPERATIONS ON JOINTS—7.

Resections—2.

	Totals.
Elbow	2

Incision and Drainage—3.

Elbow, acute arthritis	3

Brisement Forcé—2.

Ankle	2

The value of Mayo's method of joint drainage was well exemplified in the following case. The conditions were so bad that resection at the time would have been very ill-advised, while less radical drainage, even if successful, would have necessitated repeated revisions.

Tuberculous Arthritis of Elbow; Acute Septic Arthritis; Free Incision (Mayo); Secondary Resection; Tuberculous Ulcer of Tongue.—Deborah H., 24 years old, had tuberculosis of left elbow since three years before admission. Acute pain and swelling for several weeks. Swelling was incised by her physician; since then fever and increase of other symptoms. On admission temperature 103°, pulse 118; elbow

much swollen, red and painful, and stiff. Admitted and operated upon July 21, 1900. Bare bone felt in all directions; joint laid open by free incisions and drained; wet dressing. August 17: Wound clean and granulating; wound and exposed ends of bones thoroughly curetted and cavity packed with iodoform gauze preparatory to the radical operation, which was done on August 21. Atypical incision and removal of all diseased tissue, including the articular ends of humerus, radius, and ulna. End of ulna fitted into notch cut in end of humerus and fixed in place with chromic catgut; iodoform rubbed into wound surfaces; wound closed; gauze drains; arm in extension. Creosote and tonics internally. August 31: Wounds clean and granulating. September 5: Small ulcer near tip of tongue, which contains tubercle bacilli, curetted and lactic acid applied September 26. Movement at elbow 15°. Several sinuses persist, one leads down to bone. October 13: Discharged. December 1: Movement at elbow 45°; sinus still leads down to bone; ulcer of tongue healed; general condition much improved.

OPERATIONS ON THE TENDONS AND BURSAE—45.

	Totals.
Tenotomy for talipes equino-varus	1
Tenoplasty for talipes calcaneus paralyticus	1
Prepatellar bursitis, suppurative, incision of	2
Excision of ganglion of tendon for "trigger finger"	1

A case of ganglion of the deep digital flexor tendon, causing the condition known as "trigger finger," was successfully operated upon. Local anesthesia, if any, was absolutely necessary in this instance, because the disability was apparent during voluntary motion only and could not be demonstrated by passive motion. Thus the disappearance of the symptom could be instantly known, after the removal of the cause, by the observation of voluntary flexion and extension of the finger during the operation.

The operation for the relief of talipes calcaneus by tendon transplantation gave a far better result than one would have imagined possible on inspecting the long and apparently flabby tendon of the peroneus. Without the previous electrical examination the operation would have been unjustifiable.

Ganglion of Flexor Tendon of Finger; "Trigger Finger"; Operation; Cure.—William B., 23 years old, was admitted on April 2, 1900. There was inability to extend the left

ring finger after flexion. On attempted extension from the fist position the other fingers straightened naturally, but the affected one remained flexed until its terminal phalanx was straightened by force from without, when, with a snap, the finger assumed a normal extended position. This was accompanied by some pain, and a small nodule could be felt apparently passing over the distal end of the metacarpal bone. The man, a cigarmaker by trade, was disabled. April 3, under local anesthesia by nirvanin and with the strictest asepsis, rubber gloves, mouth mask, etc., a small oval flap, base downwards, was made over the end of the metacarpal. Opening the tendon sheath a small ganglion was seen upon the deep flexor. Voluntary flexion and attempted extension while the parts were exposed showed that this ganglion caught as it passed under the vincular tendinous bands, emerging with a snap when force was used. If the parts were relaxed the finger could be flexed and extended passively without hindrance, because the vincular band was slack and did not oppose the passage of the ganglion. The little sac was excised with scissors, the wound closed, and the hand dressed flexed. Prompt and perfect recovery followed.

Talipes Calcaneus (Paralytic); Tenoplasty; Improvement.—Henrietta L., 6 years old, was admitted September 3, 1900. The little patient walked on the heel of the right foot, but the left was normal. There was marked contracture of the plantar tissues of the right foot as well *(pes cavus)*. Electrical examination showed that the peronei were functionally active, but that the gastrocnemius and soleus were not. Operation September 11, under chloroform. The peroneus longus tendon was divided and its proximal portion was passed through a longitudinal slit in the tendon Achillis and fixed with silk sutures. Cutaneous wound sutured and foot fixed with plaster of Paris. The patient was discharged in the splint a few days later. Improvement after discharge was very marked, so that the gait is nearly normal.

OPERATIONS INVOLVING THE ABDOMINAL CAVITY—total, 134; 42 deaths.

GALL BLADDER AND GALL DUCTS—7; 4 deaths.

	Totals.	Deaths.
Cholecystotomy	2	1
Cholecystectomy	1	
Choledochotomy	3	2
Cholecystenterostomy	1	1

Note.—**Cholecystotomy was done also on 4 other patients in connection with choledochotomy and cholecystenterostomy.**

Sufficient exposure in order to facilitate intra-abdominal manipulation and shorten the time consumed in the operation

is recognized as of paramount importance in work about the gall bladder and ducts. The incision adopted with this end in view is a curved one, beginning near the median line to the right of the xiphoid cartilage, crossing the rectus about an inch below and parallel with the costal border, and then turning sharply downward for a variable distance just within the border of the rectus and parallel with its outer margin. The structures down to the muscle are incised and the rectus is then drawn by blunt retraction strongly toward the median line of the body. Now the structures posterior to the muscle are divided almost transversely, the entire flap being turned down. Occasionally it is necessary to divide a portion of the upper part of the rectus transversely as well, but this is not usually the case. This exposure is excellent and the resulting cicatrix remarkably fine and solid, even when the entire wound has to be left to granulate. Gauze drainage was usually employed, the gauze being kept from contact with the uninvolved viscera by a layer of gutta percha tissue. This greatly facilitated the removal of the drain and avoided the danger of reopening lymph spaces by loosening adherent gauze. These wounds are closed either by through-and-through shot and plate sutures of silkworm gut or by many chromic gut stitches approximating all the layers of the abdominal wall, excepting the skin, which is brought together with strips of sterilized zinc plaster.

There were seven patients, of whom four died. The death following cholecystotomy was really not due to the operation, the patient suffering from general abdominal carcinosis. The death following cholecystenterostomy occurred in a patient upon whom the operation was performed with the hope of relieving pain and perhaps diminishing icterus. The disease was carcinoma involving the common duct. One case of choledochotomy died from surgical shock, and the other from hemorrhage due to the accidental wounding of a small vein which, probably from the presence of icterus, bled after the operation.

Cholelithiasis; Cholecystitis; Cholecystectomy; Cure.—On the 8th of May, 1900, Mary N., 30 years old and very obese, was admitted to the hospital with a typical history of attacks of biliary colic without jaundice. There had been vomiting in some of the attacks, but no fever until the last or present one, which began two weeks ago. On admission the patient had an

evident congestion of the lungs at both bases, fever with a temperature of 101.4° and a pulse rate of 140. An ice bag had been unskilfully applied over the epigastrium, with the result that there was a severe frostbite with cutaneous gangrene over a space as large as the palm of the hand. Although the fat abdomen rendered palpation difficult, it was thought that a resistance could be made out in the region of the gall bladder. On account of the pulmonary trouble, operation was delayed until May 14, six days after admission, when, under chloroform, then ether, the oblique incision along the border of the rectus and the margin of the ribs was made. The gall bladder was found to be full of stones which seemed to be pretty firmly impacted, and the cystic duct contained a few movable ones. The common duct was evidently free on palpation, as might have been surmised from the absence of jaundice. The pancreas and duodenum were apparently normal. The attachment of the gall bladder being rather narrow, it was determined to remove it entire. This was done with the help of two clamps, which were forced between the layers of the peritoneum, one clamp compressing each layer, and then the viscus was cut away with scissors as far as the cystic duct. A silk ligature of large size was tied firmly around this structure and the gall bladder ablated. The stump was touched with pure carbolic and the ligatures left long and protruding from the wound. A gutta percha tissue and gauze drain was passed down to the stump and the remainder of the wound closed with through-and-through silkworm-gut sutures. The clamps were removed two days later without hemorrhage. Diarrhea was the only complication of the recovery. There was no leak from the bile passages, but the silk ligatures did not come away until July 5. This delayed the discharge of the patient for a number of weeks. She went home well on July 14.

Cholelithiasis; Operation; Hemorrhage; Death.—The patient, Rosie W., 40 years old, came to the hospital on the 30th of March, 1900, suffering with the symptoms of impacted gallstone. For seven years she had had periodical attacks of severe pain of an aching character in the epigastrium, running round to the right lumbar region. She suffered with increasing frequency, having to resort to morphine for relief. For the eight days preceding admission she had been jaundiced and was deeply icteric at the time of the physical examination. The liver at this time extended, according to percussion, four fingers' breadth below the free border of the ribs. No mass in the region of the gall bladder could be felt. The patient was well nourished and in good general condition, except for the profound jaundice with great pruritus. An umbilical hernia of moderate size was noted. It was reducible, but the patient said

that ten days before it had been irreducible for three days. The pulse was 90 and the temperature normal. On the 3d of April an operation was undertaken, chloroform being administered. An S-shaped incision was made, beginning an inch below and to the right of the tip of the ensiform cartilage, thence outward to the border of the rectus, and then downward along the border of the muscle for about two inches, and finally outward into the fibres of the obliques. The undistended gall bladder, containing numerous stones, could be felt and seen. The border of the liver was as ascertained by the physical examination. The common duct was palpated and its feel suggested that there was a stone impacted within its lumen. On laying bare the duct in this region it was found to be very much thickened, so that it was thought to be the seat of neoplasm.

On incision there was a great deal of hemorrhage, the dark blood flowing out by steady oozing. Because neoplasm was strongly suspected, the operation was abandoned at this point, the bleeding being apparently checked by packings. The gall bladder was sutured to the aponeurosis, with the intention of opening it at a later time. The angles of the wound were left open, the remaining portion being closed with through-and-through silkworm gut. The patient collapsed after the operation and had to be stimulated by every available method. About eleven hours afterward she died. A partial autopsy revealed a general bleeding and showed that a small vein lying over the common duct had been incised. No new growth was found and no impacted stone.

Cholelithiasis; Hydrocele of Tunica Vaginalis; Inguinal Hernia; Operations; Cure.—Max M., 44 years old, was admitted for the cure of hydrocele of the right side of the scrotum. There was also a moderately large right indirect inguinal hernia. The injection of forty minims of 95 per cent. carbolic acid into the emptied hydrocele sac was performed on January 18, 1900. On February 2 there was an attack of biliary colic with fever, and the appearance of a tumor in the region of the gall bladder. On February 6, under chloroform anesthesia, the first step of the operation of cholecystotomy was done through a vertical incision at the border of the right rectus. The viscus was sewn into the wound after a careful palpation of the apparently free common duct. There being considerable tension, a superficial purse-string suture was placed so as to embrace a small area of the wall of the gall bladder, and through a point within this area aspiration of about two ounces of fluid was practised, the purse-string suture being drawn tight around the needle in the meantime. On withdrawing the needle the suture was permanently knotted, so that no more of the visceral contents should escape. Three days later the gall bladder was

incised and its purulent contents, together with sixteen small stones, removed. A drainage tube was inserted and the walls of the viscus drawn together with silk sutures, so as to bring their peritoneal surfaces in contact somewhat after the manner of a Kader's gastrostomy. Nine days later the tube was withdrawn, with the immediate closure of the visceral wound without leakage. Fifteen days after the cholecystotomy the patient was anesthetized and three operations were performed—Volkmann's for hydrocele, which the carbolic injection had not cured, Bassini's for the hernia, and a skin plastic for the more rapid closure of the granulating surface in the hypochondrium. On March 29 he was discharged cured.

Cholecystitis; Cholecystotomy; Choledochotomy; Death.—Esther K., 48 years old, was admitted the 10th of January, 1900, having suffered intermittently for over two years with attacks of illness pointing to the existence of gallstones. The usual symptoms of gall-bladder obstruction and infection were present, and there was a well-defined tumor in the right side of the abdomen which seemed to extend almost to the crest of the ilium. There was icterus and a trace of albumin in the urine. The general condition of the patient was poor, though her temperature was but 101° and pulse rate 99. She was observed for four days and then operated upon. A vertical incision was made and the distended gall bladder delivered through the wound, and, after surrounding it with packings, was incised, evacuating a considerable quantity of dark, grumous pus. The probe detected a stone which was thought to be in the common duct. With one finger outside the duct and forceps within the viscus, attempts were made to extract or break up the calculus, but without avail. The duct was then cut down upon, and, after placing a purse-string silk suture in its wall, an incision was made within the area surrounded by the purse-string and a stone about the size of a filbert removed. There was a considerable escape of dark, grumous material, which was kept as well as possible from the general cavity of the peritoneum. Owing to the friable character of the walls of the duct, the purse-string tore out, so the wound in the duct had to be drained by tube and gauze, as was also the gall bladder. The patient never really recovered from the shock of the operation and died three days later. No autopsy.

LIVER—3; 3 deaths.

	Totals.	Deaths.
Celiotomy for carcinoma of liver	1	1
" " abscess of liver	1	1
For echinococcus of liver, suppurating, with resection of ribs	1	1

Echinococcus Cyst of the Liver; Sepsis; Transpleural Incision and Drainage; Death.—Jennie S., transferred from Medical Division. Operation August 10, 1900; four inches of eighth and ninth ribs resected in axillary line; costal pleura incised and rapidly sewn to diaphragmatic pleura; gauze packed around suture line; diaphragm incised. As there were no adhesions between the liver and the diaphragm, the peritoneal cavity was walled off by gauze packings. Incision one inch long made in upper surface of liver, with little bleeding. A large cavity opened which contained many large and small echinococcus cysts. There was profuse discharge of sero-purulent fluid and bile. A large number of cysts were removed and drainage tubes inserted. Skin wound partially closed and packed and dry dressing applied. The patient did not react well after the operation, she grew steadily weaker, and died twenty-four hours later.

Autopsy showed a large cavity in the upper portion of the right lobe of the liver, empty of its former contents, well drained; pleural and peritoneal cavities normal.

Abscess of Liver (Probably Typhoid); Operation; Death.—Simon G., 21 years old, entered the hospital with a history of two weeks' illness. There was epigastric pain and intumescence, fever, no jaundice and no bloody stools. Operation under nitrous oxide and ether, January 18, 1900, a three-inch incision along the border of the ribs disclosing adherent intestines in a mass at the under surface of the liver. Aspiration and incision evacuated at least two quarts of pus. The patient gradually sank during the next month, until he died, apparently of the asthenia due to chronic sepsis. Several other operations for better drainage were of no avail. An autopsy disclosed some superficial healed ulcers in the lower part of the ileum and ascending colon. There were numerous undrained abscesses of various sizes in the liver besides those which had been opened by operation.

SPLEEN—2; 1 death.

	Totals.	Deaths.
Celiotomy for perisplenitis	1	
" " multiple aneurisms of splenic artery	1	1

Hemorrhagic Pleurisy; Chronic Perisplenitis; Hemorrhagic Diathesis; Operation; Recovery.—David L., 29 years old, was admitted to the service of Dr. Manges on March 17, 1900, having been ill for three weeks with symptoms of pleurisy. On admission there were signs of fluid in the left chest. There was a slight elevation of temperature, 99.6°, with acceleration of the pulse rate to 108. In the left hypochondrium, extending four fingers' breadth below the free costal border, there was a solid mass, flat on percussion and continuous with the flatness in the

left chest. The mass seemed to be a little larger than a child's head. It moved with respiration and its flat note was not obscured on inflation of the colon with air. It did not feel like kidney nor yet like spleen. March 18: Aspiration of the chest yielded turbid, dark straw-colored fluid, but five days later an ounce of bloody fluid was withdrawn. Various forms of drug treatment were tried, but without amelioration of the symptoms and without visible effect on the size or form of the tumor. On April 7 he was transferred to the surgical service and after another week of observation was operated upon. Under chloroform a five-inch vertical incision in the mammary line, beginning two inches below the costal margin, was made. Palpation of the tumor now showed it to consist of two parts, the spleen and the kidney. The kidney was somewhat larger than normal and was displaced so that its lower pole impinged upon the anterior abdominal wall *in front* of the spleen, to which it was adherent by dense tissue. There was no indication for the removal of either organ, so the abdomen was closed with through-and-through silkworm-gut sutures.

The operation was finished at about 4 P.M., and though there had been no wound of any considerable vessel, hemorrhage began and soon flooded the dressings in spite of a firmly applied binder. At 8 P.M. the patient was removed to the operating room, the wound was opened throughout its entire extent and examined. The bleeding seemed to come from the parietes and from the broken-down intra-abdominal adhesions. It was evident that it could not be checked by ligatures, so the entire wound was packed and dressed open. The patient did very well after this, and one month later, on May 5, secondary suture was performed. Hemorrhage again occurred a few hours afterward and the wound had to be once more opened and packed. The blood was examined and a polynuclear leucocytosis was noted. The patient now made a good recovery and was discharged cured on June 21. The tumor, of course, did not change in character, but the pleuritic effusion had entirely disappeared.

STOMACH—4 operations; 2 deaths.

	Totals.	Deaths.
Celiotomy, exploratory, for carcinoma of stomach.....	1	
" and gastro-enterostomy and entero-enterostomy	1	
" " colostomy for carcinoma of stomach and colon.....	1	1
" " gastrostomy for esophageal stricture	1	1

Carcinoma of Esophagus; Gastrostomy under local Anesthesia; Exhaustion; Death.—Abraham H., 53 years old, admitted September 10, 1900. Six months before patient had first experienced difficulty in swallowing. Difficulty in deglutition increased until four weeks before admission, since when patient was unable to swallow any solid food, and liquids only with

great difficulty and accompanied by regurgitation. Patient had lost much weight and strength and was markedly emaciated. A small esophageal bougie was arrested two inches above cardia. Gastrostomy under eucaine 6 per cent. Anesthesia not complete and patient suffered considerable pain. Incision along outer border of left rectus about four inches long. Stomach was found much contracted, and infiltrated over a large part of its lesser curvature with new growth, which extended up into the esophagus. On this account stomach could not be well drawn into the wound, and only the lower part of the greater curvature could be used. A typical Kader gastrostomy was performed, two tiers of silk sutures being employed. The stomach was sewed to the parietal peritoneum, and the lower angle of the wound was closed with through-and-through silkworm gut sutures. A No. 11 English soft rubber catheter was introduced. Patient went back to ward in very good condition, pulse 100, temperature 101°. Was given peptonized milk through the tube and a stimulating enema. Three hours after operation pulse suddenly became very slow and irregular, and in spite of active stimulation patient died seven hours after operation.

Carcinoma of Pylorus; Gastro-enterostomy and Entero-enterostomy; Recovery.—Fanny D., 50 years old, was admitted on March 23, 1900. Usual history of pyloric carcinoma with tumor, which was easily palpable when the patient was examined after admission. Operation under chloroform April 14. Median laparotomy above umbilicus. The tumor was removable, but it was considered best to relieve the cachectic condition by a palliative operation as a first step. Accordingly, jejuno-jejunostomy with a Murphy button was performed after Weir's method and then posterior gastro-enterostomy with a second Murphy button was done. The abdomen was closed with shot and plate. Nine days later the abdominal sutures gave way and omentum presented in the wound. This was returned and the wound strapped. Convalescence thereafter was uneventful, the buttons passing on April 26 and May 5. There was great gain in weight and the condition was such that the operation of pylorectomy was proposed but rejected. Discharged June 4.

APPENDICITIS—total, 91; deaths, 19.

I. *Celiotomy, excision of appendix, closure of wound.*

	Totals.	Deaths.
Celiotomy for acute or subacute non-perforative appendicitis	15	1
Celiotomy for acute appendicitis, ovarian cyst	2	
" " chronic non-perforative appendicitis	11	
" following incision and drainage for acute appendicitis	1	

II. *Celiotomy, acute appendicitis, circumscribed or diffuse peritonitis.*

	Totals.	Deaths.
Appendix removed:		
For acute appendicitis, perforation, circumscribed abscess	17	2
For acute catarrhal appendicitis	1	
" " appendicitis, perforation, sero-purulent peritonitis	5	1
" gangrenous appendicitis, circumscribed abscess	12	3
" " " general peritonitis	16	9
" ruptured abscess, diffuse peritonitis	2	2
Appendix not removed:		
In abscess, peritoneal drainage	7	
" " diffuse peritonitis, enterotomy, peritoneal drainage	1	1
Tuberculous appendicitis, abscess	1	

Ninety-one operations for appendicitis were performed, not including operations for the relief of complications, and there were nineteen deaths. Thirteen of these deaths occurred in patients suffering from peritonitis at the time of the primary operation, and five others in cases of gangrene and perforation. In every one of these cases there was more or less drainage, and in most of them the wound was left entirely open and packed with gauze. In twenty-nine cases of removal of the appendix for acute, subacute, and chronic disease the wound was closed without drainage. A single death occurred in this group. The history is given below. Pneumonia and purulent bronchitis were marked contributing causes to the fatal issue. Most of the "clean" cases were operated upon by the incision along the border of the right rectus, the muscle being then drawn toward the median line and its posterior sheath and the peritoneum divided in a line parallel with the first incision, but farther toward the median line, so that when the rectus was allowed to slip back into place it would cover the opening into the abdomen. The nerve supply of the muscle was conserved as carefully as possible. These nerves permit of a great deal of stretching, so that there was in almost every instance plenty of room for manipulation. The length of the incision was considered of great importance in determining the degree of post-operative shock, and it was accordingly kept as short as possible. Often the length of the cutaneous opening was not more than an inch and one-half to two inches. However, if, on account of adhesions or other unexpected difficulties, more room was needed, the incision was at once lengthened to the required degree. Thus far no hernia has been noted when

this incision was made and the wound closed, either in hospital or in private practice. Some of the operations were performed six years ago. Indeed, many of the suppurative cases which were operated upon through this incision, the wounds being left entirely open and packed with gauze, have recovered without a sign of hernial protrusion or weakening of the abdominal wall.)

Whenever the proximal portion of the appendix was not too friable to hold a ligature, the organ was ligated with catgut, the lumen of the stump cleansed and then wiped out with a bit of sponge wet with 95 per cent. carbolic acid. Stumps thus treated were without fear dropped back into the abdomen. In dealing with friable tissues which could not be depended upon to hold a ligature, other methods such as the suture were resorted to. The wounds in these "clean" cases were closed with layer-by-layer suture of chromicized catgut, with the exception of the opening in the skin, which was rarely sutured, but the edges of which were approximated with sterilized strips of zinc-oxide-rubber plaster.

In dealing with masses of adherent viscera which were believed to enclose infected foci, gauze packings were used to wall off the uninfected portions of the abdomen. The packings were never in the shape of pads, which might be lost among the viscera, but were formed of long, folded pieces of gauze, not more than one-third of each piece being used as a packing, the other two-thirds remaining outside.

The adhesions were then carefully broken down until the infected organ was reached, or the appearance of a bead of pus warned that an abscess was present. In the latter case the pus was allowed to escape little by little, so that it could be removed without the danger of a sudden flooding of the field. Then, after a partial disinfection by wiping and the application of peroxide of hydrogen or some other antiseptic chemical, the operation was concluded and the septic cavity finally drained by packings. The intra-abdominal walling-off packings were then removed and were not replaced. These wounds were sometimes left entirely open or they were partly closed by suture.

Diffuse peritonitis was treated according to various methods. In some cases the abdominal cavity was washed out, in others

it was wiped out, and in still others no attention was paid to the exudate. The drainage of the abdominal cavity with the aid of tubes or gauze was, however, seldom if ever practised, unless we except the passing of a "cigarette drain" into the pelvis when there was a large collection of fluid in this region. There has been a tendency, too, toward a shortening of the incision, even in the presence of a purulent peritonitis. One can but note that patients die or recover rather according to the virulence of the sepsis than in consequence of any particular form of treatment. There is, it is believed, a general tendency to recovery in a greater percentage of cases of peritonitis than formerly, and this may be due to the fact that operations, even in these bad cases, are becoming more timely. The disease is recognized earlier by physicians, and the patients are sent to the hospital sooner than in former years.

The appendix was usually sought at the primary operation; but when the condition of the patient was very critical or an abscess of unusually large size was present, persistent search was thought to risk more than mere drainage, with the prospect of a secondary operation for the removal of the offending organ. One interesting case of tuberculous appendicitis is chronicled here. The adhesions at the primary operation were so dense and indurated that they formed a tumor which was thought to be a sarcoma of the intestine. The patient was finally cured after several celiotomies.

Acute Catarrhal Appendicitis (Appendix in Inguinal Canal); Removal of Appendix; Recovery.—Chaim S., 14 years old, admitted November 20, 1900. Four weeks before admission had an attack of pain in the right inguinal region, vomited once, but was not constipated. There had been no pain in the testicle or scrotum. From time to time, following this attack, there had been slight chilly sensations, but no appreciable fever. Patient had been in bed during most of time between the attack and his admission to the hospital. Pain generally ceased in the recumbent posture, but right inguinal region remained tender. On standing or attempting to walk the pain was marked. Three days before admission patient vomited once, but bowels moved daily. Examination showed a moist, coated tongue, an irregular pulse, a dilated heart with a presystolic murmur over the apex. There was tenderness in the right iliac fossa, some rigidity of the abdominal muscles, but no palpable tumor. The finger introduced into the right inguinal canal elicited con-

siderable pain. November 20: Operation under chloroform. Incision made low down along outer border of rectus muscle. The peritoneum was edematous, and there were numerous adhesions. On separating the adhesions a few drops of gelatinous fluid escaped. The appendix was embedded in a thick layer of fibrin; it lay very superficially just within the pelvic brim, its tip running down beneath Poupart's ligament into the inguinal canal. Owing to the dense adhesions by which the appendix was bound down in the inguinal canal, it was necessary to split the peritoneal coat and shell out the appendix. Its base was ligated, ablated, and cauterized. A small drain was introduced. Appendix was three inches long, covered with fibrin; the mucous membrane was soft and gelatinous and contained some gelatinous fluid, but there was no perforation. The wound healed by primary union and patient was discharged cured December 4.

Acute Catarrhal Appendicitis; Appendectomy; Secondary Pleurisy.—Ettie F., 29 years old, gave a typical history of appendicitis of four days' standing. Four hours before admission the patient had had a chill and beginning abdominal distension. On admission, September 3, 1900, the abdomen was slightly tympanitic and tender, and the right iliac fossa very sensitive to pressure, but no mass was to be felt. At the operation a non-adherent, thickened, and congested appendix was removed, the stump inverted, the abdominal cavity entirely closed. For five days convalescence was uneventful, the wound healing by primary union. The patient then began to complain of pain over the hepatic region, and the temperature rose to 101°. September 11: The patient complained of much pain, the liver was distinctly enlarged downwards, there was marked tenderness along the free border of the ribs on the right side. The wound was reopened under chloroform anesthesia, but found clean. Aspiration of the right chest and liver negative. September 12: Temperature 102.6°, pulse 114; complained of much abdominal pain, but physical examination was negative. The liver was smaller, but there was some dulness over the lower part of the right chest posteriorly. Temperature 101° to 104°. Patient had frequent chilly sensations and perspired profusely. September 20: The signs of fluid in the right chest were more marked. The operation wound was firmly healed. September 21: Seventeen ounces of clear serum withdrawn from the right pleural cavity. All the symptoms thereafter gradually subsided and the patient was discharged cured on October 4.

Subacute Appendicitis; Operation; Death.—Abram K., 40 years old, was admitted on February 21, 1900. An attack of appendicitis had begun three weeks before. The day before admission there had been a severe chill. The bowels had moved

daily. Temperature, pulse, and respiration were practically normal at the first examination and there was no pain. The only physical sign was a slight pain in the right iliac region. The patient was observed for six days without the occurrence of any symptoms of appendicitis excepting the tenderness. There were occasional attacks of coughing, due to a chronic emphysema and general bronchitis. On February 27, under chloroform, then ether, the operation for the removal of the appendix was performed. There were no inflammatory adhesions, but the distal half of the appendix was in a subcecal fossa which had to be opened in order to deliver the organ. The appendix ran backward, inward, and upward. It was finally removed with considerable difficulty. Examination of the appendix when removed showed an organ five inches long, strictured at junction of middle and distal third, and with its distal third filled with mucoid secretion. There had evidently been intimate adhesions between the peritoneal coat of the appendix and the peritoneum lining the subcecal fossa. The wound was closed without drainage. Immediately after the operation there was considerable shock with subnormal temperature and pulse of 68, rising to 102, but by eight o'clock the next morning, about eighteen hours after the operation, the temperature had risen to 103.4°, the pulse rate being 128. Calomel was given, but the series had to be stopped because of persistent vomiting. Enemata were given without result, no flatus being expelled. The abdomen was tympanitic, the tongue dry and coated, and the pulse weak. The urine contained albumin for the first time, with excess of indican and showing the presence of bile. The condition of the patient being deemed serious, he was removed to the operating room and the wound reopened and, after inspecting the abdominal organs in its immediate neighborhood, including the stump of the appendix, was packed with gauze and dressed open. The symptoms all became still more aggravated, in spite of the fact that gas was expelled in considerable quantity after a peppermint enema, so, the following day, the second after the operation, the patient was once more anesthetized and the wound reopened and thoroughly explored. There were marked evidences of fibrinous peritonitis with great distension, but no free fluid. A loop of greatly distended small intestine was drawn out of the wound and incised, allowing a large amount of gas and fluid to escape. Three such incisions were made here, each one being closed again by purse-string silk suture. A median incision into the abdomen was then made and another loop of intestine raised out of the abdomen and opened by puncture with a scalpel, the punctures being afterward closed, as were the others. The wounds were packed just enough to prevent

the protrusion of the viscera and were then dressed open. This patient lived for five days longer and then died, apparently of septic peritonitis.

Autopsy through the wound revealed fibrinous peritonitis without free fluid. The lungs showed marked adhesions of the pleura, many areas of broncho-pneumonia, and general purulent bronchitis.

Tuberculous Appendicitis; Fecal Fistula; Intestinal Resection; Recovery.—John H., 11 years old, was admitted on December 19, 1899, with a tumor of the right iliac region which had been noted for about ten days. A year before there had been an attack of pain in this locality which lasted about a week, but did not confine the patient to bed. After this there were occasional attacks of dull pain, gradually increasing until the pain became practically constant. This was accompanied by marked loss of health and strength, the boy becoming anemic and miserable. Suspecting chronic appendicitis, operation was decided upon, though the pulse was fair and 90 and the temperature but 99½°. Under ether anesthesia an incision along the right rectus border was made and the tumor was exposed, apparently a new growth adherent to the parietal peritoneum. The bowel (cecum) was accidentally opened with the finger in trying to peel it away from the mass. The opening was closed by means of a few sutures and the wound packed, after removing a small portion of the tumor for pathological examination. The patient reacted fairly well, but the wound in the bowel reopened, forming a large fecal fistula. The tumor proved to be inflammatory tissue, so every effort was made to build the patient up with a view to further operative therapy. This was so far successful that on February 6 the boy was again anesthetized and a separate fistula in the lower portion of the wound, which discharged pus instead of feces, was explored. It was found that this led down to the appendix, which was removed. Lateral anastomosis was considered, but was not thought advisable at this time because of the probably virulent pus which had been present. Recovery from this operation was prompt, and on March 6, the patient's condition except for the fecal fistula being excellent, a Murphy button end-to-end ileocolostomy with resection of the fistula and tumor-bearing ileocecal region was performed. Wound closed with drainage. The patient reacted poorly and had to be freely stimulated. On the fifth day fecal matter appeared in the wound. The button passed the natural way on the twelfth day after the operation. By the seventeenth day there was no fecal discharge at the wound, but still an occasional passage of gas. On April 14 the boy was discharged cured. A pinhole sinus still persisted, but this closed spontaneously in a few days.

The tumor was examined and proved to be tuberculous in nature. It had shrunk greatly since the first operation.

Gangrenous Appendicitis; Operation; Recovery.—Josef S., 32 years old, admitted July 27, 1900. The patient, a physician, had been in good health until the day before his admission. He was then seized with pain in the left iliac fossa; later the pain became localized to the right side. There had been some vomiting, accompanied by a chill and fever. The abdomen was distended, there was general tympany, and the right rectus was very rigid. There was a point of extreme tenderness on the right side at the level of the umbilicus. Operation July 27. The appendix was found surrounded by coils of intestine and some fetid pus. The appendix was removed; the surrounding coils of intestine and the cecum were carefully cleansed, and all the peritoneal packings were withdrawn. A drain was placed against the stump of the appendix and a flat compress against the intestines. There was some turbid fluid in the peritoneal cavity. The wound was not sutured. The patient reacted very well. The wound was drawn together with strips of zinc plaster and healed rapidly.

Acute Gangrenous Appendicitis; Abscess; Operation; Sepsis; Death.—Lillie S., 8 years old, admitted September 3, 1900. The child's illness had begun four days before its admission, with cramps in the right iliac region, accompanied by vomiting. The bowels had moved regularly and the pain had become less severe until the day before admission, when the cramps had again become severe. The abdomen was relaxed and not tender, except in the right iliac region, where a tumor of the size of an egg was palpable close to the iliac wall. September 3: Operation. On opening the abdomen no free fluid was found. After protecting the peritoneal cavity, the dense adhesions were separated and a retrocecal abscess was opened. In the abscess cavity the gangrenous mucous membrane of the appendix was found. The appendix itself was behind the cecum, to which it was closely adherent. The appendix was then removed and the peritoneal packings were renewed. A drain was introduced into the abscess cavity. Temperature 100.8°, pulse 120, respiration 26. Patient did not react well. She was very restless, soon became delirious, and the pulse became more and more rapid and feeble. A series of calomel and salts was followed by a very small movement. The child did not vomit, but died of exhaustion forty-eight hours after the operation.

Acute Gangrenous Appendicitis; Appendectomy; Subphrenic Abscess; Transpleural Incision and Drainage; Cure.—Israel H., typical history of appendicitis of four days' standing. Admitted and operated upon on August 15, 1900.

Abscess containing foul pus opened and gangrenous appendix partially removed; abscess cavity drained. August 17: Jaundice; tenderness over hepatic region; enlarged liver; delirium. August 21: Sensorium clear; jaundice less marked; wound clean and granulating; liver not tender, but dulness increased upwards. August 31: Temperature 103°, pulse 90; posterior hepatic region aspirated and pus obtained. Operation: Three inches of ninth and tenth ribs resected in axillary line; pleura and diaphragm incised; large quantity of pus evacuated; cavity drained. Convalescence uneventful; wound healed slowly. A sinus persisted for some time, but had closed when he was discharged on October 23.

Acute Perforative Appendicitis; General Purulent Peritonitis; Operation; Death.—Max F., 41 years old, admitted March 2, 1900. Two days before operation patient had been suddenly seized with general abdominal pain and vomiting, accompanied by fever. On admission the pain was most severe in the right iliac fossa. The bowels had not moved since the beginning of the attack, in spite of the fact that cathartics and enemata had been administered. Patient was brought to the hospital in a condition of collapse. The abdomen was rigid, distended and tender, especially in the right iliac region. On opening the abdomen by the usual incision, sero-purulent fluid of a fecal odor escaped from the free abdominal cavity. The appendix was rapidly found and removed. Some free fluid was sponged out of the pelvis and a large cigarette drain inserted. A second similar drain was inserted to the stump of the appendix. Owing to persistent vomiting, and the failure of gas or feces to pass by rectum in spite of a series of calomel and salts, the abdomen was again opened on the following day. The bowels were found distended and markedly injected. Several punctures were made into the bowel at different places, and gas and feces escaped therefrom. However, the symptoms of intestinal obstruction persisted, and the patient died forty-eight hours after operation.

Acute Perforative Appendicitis; Peritonitis; Celiotomy; Death.—Max F., 15 years old, admitted September 15, 1900. Patient had never previously had a similar attack. Four days before his admission to the hospital he was suddenly seized with severe pain in the abdomen, together with vomiting. The pain gradually became localized to the right iliac region. Examination showed the abdomen to be tympanitic, except in the flanks, where there was dulness on percussion. No tumor was to be felt. Temperature 102°, pulse 124, respiration 32. On opening the peritoneum, sero-purulent fluid was found in the free cavity. The gangrenous, perforated appendix was

removed and a cigarette drain introduced. The peritoneal packings were removed, and the wound was left open. In spite of active stimulation, patient died forty-eight hours after the operation.

Acute Gangrenous Appendicitis; Diffuse Purulent Peritonitis; Death.—Henry W., 9 years old; ill two weeks; admission and operation July 19, 1900. Retrocecal gangrenous appendix found and removed; abdominal cavity and pelvis drained of its sero-purulent fluid; died forty hours after operation.

Acute Gangrenous Appendicitis; Diffuse Purulent Peritonitis; Death.—Henry M., aged 28, four days' history, admitted and operated upon on October 13, 1900. Retrocecal gangrenous and perforated appendix removed; cecum partially gangrenous; abdominal and pelvic cavities drained of their turbid fluid. October 26: Abdominal cavity washed out with saline solution. Died October 27.

Acute Gangrenous Appendicitis; Diffuse Sero-purulent Peritonitis; Death.—Jacob D., aged 18, admitted and operated upon May 24, 1900. Gangrenous appendix removed and general peritoneal cavity drained. Died May 26.

1900. *Acute Perforating Appendicitis; Ruptured Abscess; Diffuse Purulent Peritonitis.*—Irma L., aged 12, five days' history. Abscess probably ruptured during trip to hospital. Perforated and gangrenous appendix removed; pus sponged from general peritoneal cavity; cavity washed out with saline solution. Died ten hours after operation.

1900. *Acute Gangrenous Appendicitis; Diffuse Purulent Peritonitis.*—Frederick F., aged 50; median incision on account of location of tumor; peritoneal cavity contains thick pus of foul odor; gangrenous appendix removed. Died six hours after operation.

Acute Perforative Appendicitis; Diffuse Peritonitis; Death.—Harry G., 18 years old, admitted January 4, 1900. First attack; sick four days. Appendix perforated; general purulent peritonitis. Incisions on both sides of abdomen, glass tubes introduced, and saline irrigations every hour after operation. Death in thirty-six hours.

Acute Gangrenous Appendicitis; Diffuse Peritonitis; Death.—Michael S., 12 years old, admitted July 25, 1900. Was kicked in right iliac region two days ago. Immediate severe pain, vomiting and constipation. On admission, temperature 102.8°, pulse 162, respiration 44. Appendix gangrenous in patches, free turbid fluid in peritoneal cavity. Death in twenty-one hours.

Acute Perforative Appendicitis; Diffuse Purulent Peritonitis; Operation; Death.—Frederic S., 29 years old, admitted April 21, 1900. First attack, of four days' standing. General abdominal pain, vomiting, constipation. Temperature 101.8°, pulse 106. Hyaline and granular casts. Immediate operation revealed a gangrenous appendix and a general purulent peritonitis. Removal of appendix; saline irrigation. Death in twelve hours.

Acute Perforative Appendicitis; Diffuse Purulent Peritonitis; Removal of Appendix; Saline Irrigation; Drainage; Death.—Pesach C., 42 years old, admitted March 25, 1900. Sick two and one-half days; first attack. Abdomen tympanitic, dulness in both flanks. Patient presented typical picture of peritonitis. Temperature 104.2°, pulse 150, respiration 40. Gangrenous appendix and purulent fluid removed through right sided incision. Small incision on left side showed purulent fluid present there also. Saline irrigation of peritoneal cavity; drainage through both incisions. Intravenous saline infusion. Death in twenty-eight hours.

Acute Perforative Appendicitis; Abscess; Purulent Peritonitis; Removal of Appendix; Drainage; Secondary Left Lumbar Abscess; Incision and Drainage; Recovery.—Samuel R., 26 years old, admitted December 16, 1899. Two months before operation patient had been discharged from the hospital after the subsidence of an attack of catarrhal appendicitis. Three days before his readmission patient had been suddenly seized with severe abdominal pain, accompanied by vomiting. The following day there was general abdominal pain, most intense in the right iliac fossa. There was repeated vomiting, but the bowels had moved after a cathartic had been taken. On admission there was marked abdominal tenderness, especially on the left side. Temperature 102.4°, pulse 96, respiration 24. The right side of the abdomen was tense and rigid; the whole hypogastric region was painful and extremely tender, the left as well as the right side. By rectum a tender mass could be felt high up on the left side. The large exudate that had been felt two months previously was no longer present. December 16: Incision along outer border of right rectus muscle. The peritoneum, which was about one-quarter inch thick, was incised and considerable sero-purulent fluid escaped. The omentum, which presented in the wound, was very much thickened and very friable. On freeing the omentum from its adhesions below and externally a large abscess cavity was exposed. Internally, adherent gut shut off the general peritoneal cavity to a large extent, but not entirely. The appendix was found very much thickened, embedded in an old fibrinous exudate. The appendix was removed and the abscess cavity drained.

December 17: Temperature 101°, pulse 90; bowels moved; some vomiting. December 20: Temperature 100°, pulse 80. December 24: Temperature 102°; no retention in wound. December 25: Temperature 103.4°, pulse 96, respiration 24; rectal examination negative. December 27: Patient complained of pain in left lumbar region, where a mass could be felt; temperature 103.4°, pulse 104. December 28: Mass in left lumbar region more distinct, tender and painful. Temperature 102°, pulse 90. A transverse incision was now made in the left lumbar region and the retroperitoneal fat was exposed. A thickened, indurated mass presented, from which the colon could not be isolated. An aspirating needle was introduced and foul pus was withdrawn. The needle was left *in situ* and an incision made alongside of it. In this way the colon was opened. A finger introduced into the lumen of the gut could feel the needle running through the anterior wall of the colon, but not into its lumen. The opening in the colon was closed with layer sutures of catgut. By blunt dissection the adhesions in front of the colon were separated and a foul-smelling abscess cavity was opened. The cavity was packed with gauze and the incision partly closed with sutures. For a few days there was a slight fecal discharge from the lumbar abscess, but both wounds healed without any further interference and patient was discharged cured February 4, 1900.

Perforative and Gangrenous Appendicitis; Abscess; Sepsis; Death.—Sadie W., 10 years old, admitted February 12, 1900. First attack; sick three days; general abdominal pain, constipation, no vomiting. Temperature 102.8°, pulse 120, respiration 32. Immediate operation revealed a gangrenous appendix with gangrenous mesenteriolum and an abscess cavity. Appendix removed; abscess drained. Death from sepsis in twelve hours.

Acute Gangrenous Appendicitis; Angina Pectoris;. Operation; Death.—Henry H., 54 years old, was admitted on July 6, 1900, with a typical history of acute appendicitis which began two days before. The patient stated that he was subject to attacks of angina pectoris. Operation was performed at once, ether being the anesthetic of choice. The appendix was gangrenous, was surrounded by an abscess, and there was seropurulent fluid in the general cavity. The appendix was removed and the abscess drained. The patient did well and was considered fully out of danger when he suddenly expired on July 19, thirteen days after operation. A limited autopsy disclosed marked myocarditis.

Acute Gangrenous Appendicitis; Intestinal Obstruction; Colostomy under local Anesthesia; Death.—Pincus E., 28 years old, admitted November 2, 1900. Had several attacks

of abdominal pain during the past few years. Present attack of six days' standing. Vomiting had been persistent. Intestinal obstruction. Colostomy was done under local anesthesia. Death in two hours. Autopsy revealed a gangrenous appendix with numerous adhesions.

INTESTINAL OPERATIONS—total, 17; 13 deaths.

	Totals.	Deaths.
Celiotomy and resection for sarcoma of small intestine, Murphy button	1	1
Celiotomy and resection for carcinoma of sigmoid flexure, Murphy button	1	
Celiotomy and resection of transverse colon for carcinoma, suture	1	1
Celiotomy and resection for fecal fistula, Murphy button.	2	
" " " " gangrenous umbilical hernia, Murphy button	1	1
Celiotomy and resection for gangrenous femoral hernia, Murphy button	2	1
Celiotomy and enterorrhaphy for traumatic perforation	1	1
" " enterotomy for intestinal obstruction due to Meckel's diverticulum	1	1
Celiotomy for perforation (?) of intestine	1	1
" and enterotomy for peritonitis	1	1
" for reduction of intussusception	3	3
" " intestinal obstruction due to adhesions	1	1
" and left inguinal colostomy	1	1

Diffuse Purulent Peritonitis; Perforation of Intestine; Exploratory Celiotomy; Death.—Samuel S., 36 years old, admitted May 6, 1900. Four days before admission patient had fallen and struck his right hypochondrium. For two days following the fall he had vomited several times, had had fever and pain over the entire abdomen. The vomiting had then stopped, but the pain and fever had persisted. The bowels had moved regularly; there had been no urinary symptoms. The vomitus had contained a small amount of blood. The abdomen was considerably distended, tympanitic, and tender. No mass could be made out, and no evidence of free fluid. Rectal examination was negative. The general condition of the patient was poor. The pulse was rapid and feeble. Temperature 103.6°, pulse 120. The urine contained albumin and red blood cells. The abdomen was opened by an incision along the right rectus muscle. The appendix and gall bladder were normal. The incision was then extended upwards and across the abdomen in order to explore the stomach and intestines. No lesion of these was found. The omentum was adherent in many places to the small as well as the large intestine. Several of these adhesions were ligated and divided. The intestines were then returned into the abdomen, except in the lower angle of the wound, where the caput

coli was allowed to project. The wound was closed with adhesive plaster, the caput coli was incised and its contents evacuated. The opening in the gut was allowed to remain. On the day following operation the patient vomited several times; a series of calomel and salts was ineffectual. Enemata resulted in the expelling of some gas. On the following day the general condition was improved. Temperature 100.4°, pulse 120. No vomiting. On the third and fourth days the condition improved remarkably. Temperature 100°, pulse 105. A high oxgall enema was effectual, and urination was voluntary. There was considerable fecal discharge from the opening in the caput coli. The patient continued to improve until the ninth day after operation, when he suddenly developed edema of the lungs and, in spite of active stimulation, he died. No autopsy.

Traumatic Rupture of Small Intestine; Peritonitis; Operation; Death.—Louis P., a boy of about 10 years of age, was admitted to the hospital on November 4, 1900, with obvious peritonitis following a fall from a lamp post, in which he struck his abdomen. There was a contusion of the region about the right anterior superior spine of the ilium and another a little to the right of the navel. Operation under chloroform was immediately undertaken. The abdomen was filled with purulent serum and intestinal contents. A perforation 1 cm. long with everted mucous membrane was found and closed by two layers of Lembert sutures. Abdominal cavity washed out with hot saline solution. Death about fourteen hours after operation.

The following case of closure of an intestinal fistula involving five coils of small intestine will be of interest. The last time that the patient came to the hospital, a number of weeks after her discharge, the Murphy button had not passed. It had been clearly demonstrated in the left iliac region with the help of the X-rays.

Closure of Fecal Fistula following Operation for Double Ovarian Abscess.—Lena O., 25 years old, was referred to the surgical division from the gynecological service with an intestinal fistula following a laparotomy for the removal of the uterus and appendages in the presence of double ovarian abscess. General peritonitis followed the hysterectomy and enterostomy was performed for distension. The peritonitis subsided, but the fistula remained, in spite of several attempts to close it without abdominal section. On the 4th of April, 1900, under chloroform anesthesia, the fistula was dissected out and with difficulty five coils of adherent intestine were, as it were, unravelled and a resection with Murphy-button anas-

tomosis accomplished. There was some stitch-hole suppuration, but, on the whole, a satisfactory convalescence. The button had not passed on her discharge, May 6, and it is worthy of note that on April 26 there was what seemed to be an attack of acute intestinal obstruction, which, however, yielded to non-surgical treatment. The patient, on her discharge, was told to report at once the occurrence of untoward symptoms and she is seen at the hospital from time to time.

Sarcoma of Small Intestine; Celiotomy; General Peritonitis; Death.—Mendel M., 42 years old, admitted January 8, 1900. For two weeks preceding his admission patient had had irregular abdominal pain; there had been no fever, no vomiting. Four days before admission the abdominal pain became very severe; the bowels were constipated. At this time patient noticed a mass low down in the abdomen; it increased rapidly in size and became tender. Examination revealed a tumor in the hypogastric region, extending into both iliac regions. The tumor was very tender to touch and gave the impression of deep fluctuation. The urine contained hyaline and granular casts. Pulse 98, temperature 101.4°, respiration 22. Operation was immediately undertaken. An incision four inches long was made over the most prominent portion of tumor. The tumor was aspirated several times, but only blood was found. The tumor was found to be of the size of an adult head, adherent to the right iliac wall, to the floor of the pelvis, and to the bladder. The mass was enucleated with great difficulty. The right ureter was closely adherent, and a coil of small intestine (ileum) was incorporated in the tumor. After the tumor was freed on all sides, about four inches of small intestine were resected. The Murphy button was used, and a V-shaped piece was removed from the mesentery. One layer of Lembert sutures was placed over the button. A large gauze drain was introduced and the abdomen was closed with through-and-through silkworm-gut sutures, except at the lower angle, where a drain was introduced. Bowels did not move at all following the operation, and nausea, followed by vomiting, set in. There was slight rise of temperature and the pulse became more and more rapid and feeble. Three days after operation the dressing was changed under anesthesia. The edges of the wound were found necrotic and there was a profuse purulent discharge from the wound. All of the superficial sutures were removed and the wound irrigated with peroxide of hydrogen. On the following day the vomiting continued and the pulse became more feeble. On the fifth day after operation the pulse became very weak, and in spite of stimulation the patient died, without there having been any movement of the bowels after the operation.

On examination of the tumor and mass of intestine after its removal it was noticed that the central portion of the growth was necrotic and that it connected by a small channel with the lumen of the gut. The tumor had been ruptured during the operation and some of the septic contents must have contaminated the peritoneum. The growth proved to be a spindle-celled sarcoma of the jejunum.

Eight cases of intestinal obstruction, exclusive of strangulated hernia, were operated upon, with one recovery. The histories which follow would indicate that in all except the case of Samuel G., chronic obstruction, there was delay in sending the patient to the hospital. As a rule, physicians are quick to recognize appendicitis and slow to suspect intestinal obstruction. It is unusual to see these cases admitted until some almost fatal prognostic sign, such as fecal vomiting, has shown itself. There were three cases of acute intussusception, all occurring in children. All died. It must be remembered, however, that recovery is the exception and not the rule after operations of this type. Nevertheless, to refuse the only chance for recovery by withholding the scalpel must be considered cowardly. (For the histories of intestinal obstruction from strangulated hernia see Hernia.)

Intussusception (Ileocecal); Operation; Death.—Beatrice G., 3 months old, was admitted June 26, 1900, having been suffering thirty-six hours with the classical symptoms of intussusception. Operation under chloroform was undertaken immediately after admission, the incision being made in the median line because the tumor could be felt in the left iliac region and yet it might be necessary to explore the right side as well. The tumor was about three inches long and was reduced without great difficulty. After apparent reduction there was still a mass to be felt within the cecum, and this was incised, disclosing infiltrated ileocecal valves. They were removed. The appendix was hemorrhagic but was not removed. The whole operation lasted but a few minutes, it being thought best to make haste on account of the poor condition of the little patient. The cecal opening was closed with a few sutures and packed in the wound. Convulsions occurred a few hours after the operation and the patient died.

Ileocecal Intussusception; Celiotomy; Death.—Benny L., 6 years old, admitted May 19, 1900. The child's illness had begun five days before its admission, with abdominal cramps of a

mild character. The cramps were intermittent in type and during the intervals the boy felt well. He had vomited several times, but only after taking food. There had been little or no fever. During three days preceding the operation the bowels had not moved, but slight quantities of blood had been passed by rectum, accompanied by tenesmus. On examination the abdomen was found distended, and separate coils of gut could be seen through the abdominal wall, but no peristalsis was observed. Rectal examination was negative. An enema removed some bloody mucus from the rectum. A median abdominal incision was made above and below the umbilicus. A large tumor was found on the right side, which proved to be an ileocecal intussusception. About eight inches of ileum were invaginated into the cecum. The cecum itself was not invaginated, and the appendix was normal. The entire tumor was about three and one-half inches long and of the diameter of a silver dollar. The intussusception was reduced with considerable difficulty by exerting pressure on its distal end. Upon reducing the intestine considerable stinking, dark-brown fluid escaped. The fluid seemed to be serous exudate. The peritoneal covering of the portion of the ileum that had been constricted was black over much of its extent and gangrenous in places. A small incision was made in the cecum to relieve the distension. This was closed with a silk suture and the intestine returned into the abdomen. The upper part of the wound was closed; the gangrenous portion of intestine was left outside of the lower angle, surrounded by packings. The gangrenous piece of intestine was then cut away and a dry dressing applied. The child was in collapse during the operation and an intravenous infusion was given. After the operation a second infusion had to be given. The temperature rose steadily to 108°, and the child died six hours after the operation.

Intussusception (Ileocecal) in an Infant; Celiotomy; Reduction; Death.—Jennie W., 6 months old, admitted May 14, 1900. One week before admission child had bronchitis. Three days later had frequent thin, greenish movements of bowel. At no time was there any vomiting. During twelve hours preceding operation there were several bloody stools. On admission child was in collapse, pulse was weak, extremities cold and cyanosed. The lungs were the seat of a general bronchitis. The abdomen was not distended. There was a soft tumor running upward from the left iliac fossa along the course of the descending and transverse colon. Examination by rectum revealed a mass that felt like prolapsed bowel. By means of rectal injections the greater part of the

tumor was made to disappear. The tumor could be felt to recede from the sigmoid to the right iliac fossa, but beyond this point it could not be reduced. May 14: Median celiotomy. The tumor was readily found in the right iliac region and drawn into the wound. It was about three inches long and one and one-half inches in diameter, and consisted of an ileocecal intussusception. The appendix was long and was partially drawn into the intussuscipiens. The tumor was reduced by exerting pressure at the distal extremity; no traction was made. The intestine appeared viable and was replaced. The lower part of the incision was closed and gauze packing introduced through the upper angle. The whole operation was done as rapidly as possible, not more than twenty minutes being required. Towards the end of the operation the child was so collapsed that no anesthetic was employed. Patient died two hours after operation.

Acute Intestinal Obstruction due to Meckel's Diverticulum; General Peritonitis; Death.—Joseph W., 20 years old, gradually increasing pain and swelling of abdomen of six days' duration; later vomiting. On admission, June 9, 1900, all signs of obstruction were present, the abdomen was much distended and tender. No tumor could be felt on abdominal or rectal palpation. Operation: Median laparotomy. Small intestines enormously distended; several coils tapped and emptied of their contents; general adhesive peritonitis; ascending colon collapsed, transverse colon distended; constricting band of adhesions divided; examination of rest of abdomen being negative, abdominal wound was closed; dry dressing. June 10: The symptoms of obstruction still persisted and the patient's condition became much worse. Temperature 104°, pulse 112. Wound reopened and most distended coil of intestine drawn out, opened and drained. The patient did not react after the operation and died ten hours later. Autopsy showed a Meckel's diverticulum adherent to and strangulating the ileum near the cecum. The diverticulum was of the size of the gall bladder, was gangrenous and contained a fishbone.

1900. *Carcinoma of Stomach and Transverse Colon; Acute Intestinal Obstruction; Colostomy; Death.*—Louis B., aged 39, colostomy of transverse colon for acute intestinal obstruction, tumor of stomach and transverse colon. Died forty-eight hours after operation. At autopsy there was found a carcinoma of the greater curvature of the stomach, which had become adherent to and perforated into the transverse colon. The intestinal obstruction was due to the adhesions about the tumor.

Infected Carcinoma of Transverse Colon; Chronic Obstruction; Resection; Death.—Solomon C., 58 years old, was admitted on the 10th of May, 1900, with a typical history of chronic intestinal obstruction and an easily palpable tumor of the right hypochondrium. The patient was cachectic and miserable, with symptoms of sepsis to complicate matters. Operation was undertaken on May 19, under chloroform, and a suppurating and constricting tumor of the right portion of the transverse colon found. Sero-purulent fluid escaped on opening the abdomen. Resection with Murphy button anastomosis, with drainage of the wound, was performed, but the patient did not react satisfactorily and died thirty-six hours later.

Carcinoma of Sigmoid Flexure; Chronic Intestinal Obstruction; Resection; Murphy Button; Cure.—Salomon W., 53 years old, suffered for eight months from obstinate and increasing constipation. Abdomen more and more tympanitic; intestinal movements felt; stools tape-like; for the last four days absolute constipation. Admitted July 21, 1900. General condition poor; abdomen tympanitic; no tumor to be felt by abdominal or rectal palpation; marked hyperperistalsis. After the administration of a laxative all the symptoms of acute intestinal obstruction appeared. July 21: Median laparotomy. Small, freely movable, constricting carcinoma of sigmoid flexure found and removed with two inches of bowel on each side. End-to-end anastomosis with Murphy button and wound closed except for small gauze drain. Drain removed the second day; bowels moved on fifth day; button felt in rectum and removed on twelfth day; highest temperature 101.6°, highest pulse rate 108. Discharged cured on thirty-eighth day after operation.

Chronic Intestinal Obstruction due to Adhesions; Operation; Death.—Samuel G., 50 years old, was admitted on the 12th of June, 1900. There was no history of any previous attack. Two days before admission, after lifting a heavy weight, general abdominal pain came on. It was most marked in the right iliac region. There was no vomiting and the patient said that his bowels had remained regular. Physical examination revealed nothing except a small bubonocele and tenderness along the right inguinal canal. The pulse rate was 100 and the temperature 101.6°. The pain persisting, operation was performed on June 16 through an incision in the right side as for the removal of the appendix. The right iliac fossa contained a large tumor made up of adherent coils of intestine, many of which were greatly hypertrophied. Neither the appendix nor the cecum could be found. The transverse colon was collapsed. The adhesions were perfectly organized and had evidently

existed for a long time. Within the small intestine foreign bodies were felt. They were removed through a minute opening and were found to be two wooden toothpicks. The wound in the intestine was closed with silk sutures. The patient bore operative work badly and it was not considered safe to proceed farther. He never reacted after the operation and died, in spite of stimulation, thirty-six hours later.

Stricture of Rectum; Colostomy; Death.—Katie S., 43 years old, admitted September 23, 1900. Fifteen years before, after birth of child, patient was operated on for hemorrhoids, on account of pain and bleeding from the rectum. She was never relieved of her symptoms, but had had occasional bleeding from the rectum, pain before and after defecation, and cramp-like pains in the lower part of her abdomen. Four years ago she noticed that the stools were becoming smaller in calibre and that there were occasional discharges of pus from the rectum. The symptoms were more marked in the summer time. She lost flesh and strength during the attacks, but regained her usual health when they subsided. The rectal examination showed that there was a stricture one and one-quarter inches from the anus, which readily admitted the tip of the index finger and which seemed to be cicatricial in character. The feces contained some red blood and pus cells. On October 3 a specimen was removed from the site of the stricture under chloroform. The pathologist's report was that it was cicatricial tissue. The patient did not do well after the operation; her temperature fluctuated between 100° and 102°; she had frequent fluid and bloody movements from her rectum, which persisted in spite of astringent medication and astringent irrigations. As the patient was becoming rapidly weaker and as her abdomen had been distended for several days, right inguinal colostomy was advised and done on October 20. The abdominal cavity contained free gas, and some thin fluid, of a fecal odor, escaped from the pelvic cavity. The pelvic cavity was drained and the descending colon was sutured into the wound, but was not opened. The patient did not bear the operation well; she suffered severely from shock. In spite of active stimulation, she grew steadily weaker and died in about twenty-four hours. A limited autopsy showed a general severe ulceration, probably tuberculous, involving the entire colon. In many places erosion had proceeded to such an extent that merely the thinnest membrane prevented perforation, yet there were no adhesions and little or no lymph deposits. From the presence of gas in the abdomen it seems probable that a pinhole perforation existed somewhere.

MISCELLANEOUS ABDOMINAL OPERATIONS—total, 11; died, 1.

	Totals.	Deaths
Celiotomy for acute pancreatitis and fat necrosis	1	
" " carcinoma of head of pancreas	1	1
" " ovarian tumors	1	
" " ovarian cyst, twisted pedicle	1	
" exploratory	2	
" for retroperitoneal abscess	2	
" " omental torsion	1	
" " uterine fibroids	1	
" " gonorrheal sepsis	1	

The history which follows is that of a condition rarely encountered on the operating table and almost never diagnosticated before section. The fortunate recovery adds pleasure to the interest of the record.

Acute Hemorrhagic Pancreatitis; Fat Necrosis; Operation; Recovery.—Hyman S., 53 years old, said that nineteen years before he had had what seemed to him an attack similar to the present one. Nine days before admission cramp-like abdominal pain, with fever, but no chill or vomiting, set in. The epigastric region became progressively more tender on palpation. There was some constipation with light-colored stool. Examination immediately after admission showed considerable abdominal distension, with a dull mass in the right hypochondrium which moved on respiration and was sensitive to pressure. Pressure in the left hypochondrium caused pain in the right side. The right rectus was rigid. The temperature was 101° and the pulse rate 104. There was no bile in the urine, but there was slight conjunctival jaundice. On June 5, 1900, one day after admission, under chloroform, a curved incision along the free costal margin was made, extending to the level of the navel. The gall bladder was apparently normal. The omentum, however, was thickly studded with small light-gray patches, varying in size from that of a pinhead to a centimetre in diameter. They were somewhat elevated and gave the impression that they might be metastases from some new growth. The condition was most marked in the right upper quarter of the omentum. The incision was enlarged downward, so that the whole hand could be inserted and the gall bladder and ducts carefully palpated. In the region of the head of the pancreas was felt a mass as big as the fist and very hard. One could not be sure that it was not a neoplasm of the pancreas. There was considerable bloody fluid in the abdomen. The tumor was aspirated three times and nothing but pure blood obtained. A nodule from the omentum

was removed for microscopic examination and the wound closed with drainage. There was considerable febrile reaction after the operation and some vomiting, but recovery was progressive until his discharge on June 30. The specimen removed proved to be a typical one of fat necrosis.

Carcinoma of Head of Pancreas involving Gall Ducts; Cholecystenterostomy; Death.—Emanuel F., 59 years old, with a history of but three weeks' illness characterized by epigastric pain and nausea with jaundice, was admitted on May 28, 1900. On examination of the abdomen the liver was found enlarged and the gall bladder tense, large, and painful. June 16: Laparotomy under chloroform, then ether, was performed and a hard, nodular tumor, presumably of the head of the pancreas, was felt. Cholecystenterostomy with Murphy button was made. Death, apparently from hemorrhage of icterus, occurred two days later. No autopsy.

The unusual intra-abdominal accident of twist of the omentum is exemplified in the next history. The happy outcome must be ascribed in great part to the employment of nitrous oxide as the anesthetic.

Intra-abdominal Omental Torsion; Resection of Omentum; Recovery.—Abraham L., 79 years old, admitted March 7, 1900. He was referred to the hospital by his physician with the diagnosis of an abscess following appendicitis. The patient, in spite of his advanced age, had always enjoyed good health. On July 3, 1899, he was knocked down by an electric car. He fell on his face and remained unconscious an hour. Patient had a right inguinal hernia for thirty years; it was always reducible, never painful, and never larger than a small fist. Four weeks before admission, without discoverable cause, he was suddenly seized with severe pain in the right iliac region. This attack lasted twenty-four hours. Following the attack patient had been perfectly well. Four days before admission there had been a second attack of severe pain in the right iliac region; the pain was not accompanied by vomiting or by fever. The pain continued at intervals until patient entered the hospital. The bowels had moved regularly. The lungs were the seat of emphysema and bronchitis, the heart of myocarditis. The abdomen was soft and not tympanitic. About midway between the anterior superior spine of the ilium on the right side and the free border of the ribs, extending from the axillary to the mammary line, a rounded tumor of the size of an orange was easily felt. It was tender to touch, of a

doughy consistency, and flat on percussion. The rest of the abdomen was normal. The sac of the inguinal hernia on the right side was empty. Temperature 101.4°, pulse 100, respiration 24. The diagnosis of an intra-abdominal abscess was made. Owing to the condition of the man's heart and lungs, the operation was performed under nitrous oxide anesthesia. A vertical incision was made over the tumor, the centre of the incision being at the level of the umbilicus. At the site of the tumor that had been felt, a piece of omentum as large as the palm of the hand was found. It was very much infiltrated and dark blue in color. Its distal portion was adherent to an appendix epiploica on the ascending colon; its proximal portion was continuous with the remainder of the omentum by a narrow pedicle which was twisted upon itself five or six times, causing strangulation of the portion of the omentum affected. The strangulated portion of the omentum, besides being adherent to the ascending colon near the hepatic flexure, was adherent to the abdominal wall (local peritonitis). Some of the adhesions were broken down, others tied off, and the pedicle above the strangulated portion ligated. The strangulated mass was cut away, a small drain was introduced, and the wound closed. Primary union resulted and the patient has remained in good health.

The full understanding and complete diagnosis of the following case is still impossible. Although three operations were performed and the patient finally cured, one cannot say what caused the retroperitoneal abscess nor from what organ it took origin. At the time of the first operation it was practically conceded that a malignant ulceration of the colon had caused perforation into the retroperitoneal space, but in the light of subsequent events this diagnosis must be discarded.

Retroperitoneal Abscess; Fibroids of Uterus; Cystic Ovaries; Operation; Fecal Fistula; Removal of Cystic Ovaries and Fibroid; Recovery.—Helen R., 41 years old, was admitted April 16, 1900. Five months before she had been treated for acute gastritis for two weeks. Three months before a tumor was discovered in the right hypochondrium. This slowly increased in size. On admission the patient was in what seemed to be a cachectic condition, with a large, movable, tender tumor filling up the right hypochondrium. Fever and the other usual signs of inflammatory disease were absent. April 20, under chloroform, a five-inch incision was made parallel to the free border of the ribs, and pus was withdrawn from the tumor with an aspirating syringe. Incision followed and a large quantity of pus

was evacuated. On exploration with the finger the right kidney could be palpated and seemed to be normal. The finger, however, broke through a very thin and friable membrane directly into large intestine. Tube and gauze drainage completed this operation. The patient steadily improved, but irregular temperatures persisted, there was a profuse fecal and purulent discharge from the wound, and there was much abdominal pain. Therefore on June 1, with the aid of chloroform anesthesia, an attempt was made to drain the abscess cavity more perfectly. Incision upon a large probe inserted through the fistula, and passing downward toward the uterus entered the free peritoneal cavity. A pedunculated mass supposed to be a carcinomatous ovary was exposed but was not removed. Gauze drainage completed this operative procedure.

There was continued improvement from this time, the patient gaining weight and the fecal discharge greatly diminishing. On account of this great general improvement it was thought that the diagnosis of carcinoma might be faulty, so on October 17 the patient was once more chloroformed and the pelvis explored through a median incision. The supposed carcinomatous ovary was now found to be a nodular, pedunculated fibroid of the uterus. It was removed. At the same time the ovaries were examined and found to be cystic. They were with some difficulty removed, together with an intraligamentous cyst of the left side, the origin of which was not clear. The wound was entirely closed. Convalescence was uneventful, there was primary union, and the fecal discharge from the wound in the loin constantly diminished. She was discharged on November 15 in excellent general condition, with a very slight fecal discharge which ceased soon afterward.

The following history is of importance in exemplifying how one disease may accurately imitate another. Whether the operation hastened the cure or not one cannot determine.

Gonorrheal Sepsis; Operation; Recovery.—Max S., 20 years old, had had gonorrhea for a month previous to his admission to the hospital on the 8th of January, 1900. For the last two weeks and a half of this time there had been repeated chills with fever. Four days before coming to the hospital, pain in the abdomen, with constant nausea, but without vomiting, had appeared. The bowels did not move in spite of the administration of cathartics. On examination it was noted that there was a profuse urethral discharge. The abdomen was extremely tense and could hardly be palpated on account of severe pain, which seemed to be most marked in the right iliac region. The

testicles were examined, but nothing abnormal was noted and there had been no symptoms of epididymitis or orchitis. By rectal examination the prostate could be felt somewhat enlarged and tender, while behind this body there was marked tender bulging. The pulse rate was 108, the temperature 102°, and the urine negative so far as renal disturbance went. On account of the symptoms and the appearance of the patient, a grave intra-abdominal lesion was suspected and immediate operation decided upon. Chloroform was given and the usual incision as for appendicitis was made. Nothing to account in the slightest degree for the symptoms could be found. The appendix, a rather long one, was not inflamed. The gall bladder was soft, the right kidney not abnormal, and the spleen within normal size. The wound was therefore closed without drainage. The patient made a good recovery, the gonorrhea being treated during his convalescence, and the man was discharged well on January 24.

HERNIOTOMIES—53; 5 deaths.

	Totals.	Primary union.	Suppuration	Open treatment.	Death.
Inguinal, reducible, Bassini's operation,	40	35	2	3	..
" " Halsted's "	1	..	1	..	..
" strangulated	3	..	..	1	2
Femoral, "	3	2	..	1	1
Umbilical	1	1	..	..	..
" strangulated [1]	2	..	..	2	2
Ventral	3	2	1	..	..

[1] See intestinal operations

Eight out of the entire number of herniotomies were performed for strangulation, and of this number five died. Their histories are abstracted and appear below. None of the remaining forty-five operations resulted fatally. Mild suppuration occurred in four cases, without, however, prejudicing the cure of the hernia, excepting perhaps in the ventral operation. Two of the inguinal hernias suppurated on account of infection of blood clot in hematoma. Whenever possible, the operation of Bassini was given preference, the deep sutures being of chromicized gut and the edges of the skin usually being brought to-

gether with sterilized zinc rubber plaster. Two of the suppurations occurred when cutaneous suture had been practised In two cases there was some separation of the wound when plaster had been used, but without suppuration and apparently without lengthening the time spent in bed. Except in children, who were discharged in two weeks, all patients upon whom the radical operation was performed were required to remain in bed for three full weeks. The apparent discrepancy in the figures in this table is due to the fact that in two cases there was double hernia.

Strangulated Oblique Inguinal Hernia; Thrombosis of Mesenteric Vessels; Herniotomy; Recovery.—Emil M., aged 60, had known that he had a hernia for many years. Eleven hours before admission, October 6, 1900, strangulation, after slight exertion, had occurred. The symptoms were very severe. The tumor was large and tense. On opening the sac, considerable sanguinolent fluid was evacuated and two large coils of deeply congested small intestine were seen. The two limbs of one of the coils were joined by old organized adhesions, and the mesentery of this loop was traversed by numerous distended thrombosed vessels. Heat was applied, and though the mesenteric vessels were obviously thrombosed and did not in the least regain their color and normal consistency, the coil of intestine became rosy and peristalsis was noted. The intestines were replaced after passing a rubber ligature through an opening in the thrombosed mesentery. The ends of this ligature were left protruding from the wound, so that in the event of subsequent evil symptoms the loop might easily be found. Gauze packings, without suture, completed the operation. Recovery was uneventful, the rubber ligature being withdrawn after the third day.

Strangulated Inguinal Hernia; Herniotomy under Eucaine and Nitrous Oxide; Pneumonia; Death.—Newman B., 69 years old, admitted May 12, 1900. Patient had a reducible inguinal hernia on left side for twenty years. Three weeks before admission it became irreducible and remained so. Bowels had not moved for three days prior to operation. There had been some nausea, but no vomiting. May 13: Herniotomy under eucaine. The sac contained free fluid and adherent omentum. The omentum was returned to the abdominal cavity, as the patient collapsed after a few whiffs of laughing gas had been administered. The wound was packed with gauze. A few hours after operation the lower lobe of the right lung became consolidated. Temperature 102°, pulse 120, respiration 28. May

14: Temperature 104.8°, pulse 124, respiration 36. In spite of cupping and active stimulation, edema of the lungs set in and patient died four days after operation.

Strangulated Inguinal Hernia; Herniotomy; Death.—Julius L., 68 years old, was admitted on the evening of September 24, 1900, with a right inguinal hernia the size of a fist, which had become strangulated two days before. There was fecal vomiting, together with the more usual symptoms of dangerous strangulation. There was marked senile arteriosclerosis. Operation under local anesthesia with eucaine was attempted, but it finally became necessary to administer chloroform. On opening the sac no fluid was encountered. A loop of very dark small intestine was seen, one area of which, not taking in the entire circumference, seemed of doubtful viability. Under hot cloths the color improved and peristalsis was apparent, so the contents of the sac were replaced within the abdomen, the wound packed and treated by the open method. Next day there was relief and it was thought that the patient would progress toward recovery without further complication. In the afternoon, however, there was some vomiting. The third day the vomiting continued, though the patient had a movement of the bowels and passed large quantities of gas. In the evening, because of the progressively evil symptoms, the quickening of the pulse and elevation of temperature to 101.5°, the wound was reopened and extended. A portion of greatly distended small intestine was drawn out and incised, surrounded by packings and left at the wound. There was little if any relief, however, and the patient died next day. A postmortem examination revealed a peritonitis, caused, apparently, by gangrene, without perforation, of a small area of the involved intestine.

Strangulated Femoral Hernia; Gangrene of Small Intestine; Peritonitis; Resection of Two Feet of Intestine; Death.—Jette Y., 38 years old, admitted January 5, 1900. Patient had a reducible left femoral hernia of size of a fist for past two years. Four days before operation hernia suddenly became painful and could not be reduced. Patient immediately began to vomit and to have chills and fever. The bowels had not moved for four days. On admission patient was in wretched condition. Temperature 99°, pulse 130; urine scanty, containing many granular casts; fecal vomiting. January 5, 10 P.M.: Incision into the hernial sac revealed a loop of gangrenous small intestine and a large piece of gangrenous omentum. The proximal loop of intestine was drawn out of the abdomen for the extent of two feet before gut was reached that looked via-

ble. All this extent of gut, although most of it was not in the hernial sac, was almost black, edematous, and had lost its glistening appearance. About two feet of small intestine were resected with Murphy button anastomosis. During manipulation the gut was so friable in several places fluid feces escaped into the hernial sac, and some even into the peritoneal cavity. The gangrenous omentum was then resected. The point of anastomosis with the button was left presenting in the wound and the wound was packed. During the operation there was collapse and intravenous infusion was practised. Following the operation patient did not vomit, but pulse became progressively weaker in spite of a second infusion, and death took place in fourteen hours.

Strangulated Femoral Hernia; Gangrene of Intestine; Resection; Murphy Button Anastomosis; Bassini; Cure.—Dora R., 30 years old, married, had reducible femoral hernia for five years, irreducible for thirty-six hours, symptoms of strangulation twenty-four hours. Admitted and operated upon on September 1, 1900. Four inches of small intestine resected for gangrene; end-to-end anastomosis with Murphy button; typical Bassini femoral hernia operation. Convalescence uneventful. Highest temperature 101°, highest pulse 102. Out of bed sixteen days after operation. Discharged cured twenty-one days after operation. Button not yet passed. (*Note.*—December 1, patient declared that button had not passed; it could not be felt on palpation.)

Strangulated Umbilical Hernia; Operation; Pneumonia; Death.—Mrs. B. G., 45 years old, admitted April 26, 1900. Patient had had an umbilical hernia the size of a child's head for ten or twelve years. She had had several attacks of strangulation, which had either relieved themselves or had been relieved by taxis. The patient was very obese and in poor general condition. The large hernia was irreducible and was complicated by a markedly pendulous abdomen. The urine contained hyaline casts, pus and epithelial cells. There were evidences of a fatty heart. A vertical incision was made over the hernial mass and the sac opened. It contained much adherent omentum, and several coils of small intestine, all of which were adherent. The adhesions of the small intestine were torn through and the gut was returned into the abdomen. All of the adherent omentum was resected at the level of the neck of the sac. The omentum adherent to the sac was removed with the sac. The ring was closed vertically by means of several chromic gut sutures. A large V-shaped piece of skin and underlying fat was then excised, in order to get rid of the large, pendulous mass of fat which hung from the lower part of the abdomen.

A drainage tube was inserted at the lower angle of the wound and the rest of the wound was sutured. On the following day signs of pneumonia developed at the bases of both lungs. During the following two days the pneumonic process became more marked, the patient passed into a stuporous condition, edema of the lungs set in, and death took place six days after operation.

Strangulated Umbilical Hernia; Gangrene of Gut; Sepsis; Resection of Gut; Death.—Fanny B., 38 years old, admitted May 6, 1900. Patient had had a large umbilical hernia for two years, without any previous attacks of inflammation or strangulation. Three days before admission, while scrubbing, there had been a sudden onset of vomiting, accompanied by pain in the hernia. The vomiting had continued and on admission it was of a decidedly fecal odor. Since onset of the attack no gas or feces had passed per rectum. Examination showed an umbilical hernia the size of a child's head, irreducible, tender, and flat on percussion. At the central portion of the tumor the skin was reddened and adherent to the deeper tissues. There was no impulse on coughing. The patient's general condition was poor, the pulse was 135, and fecal vomiting was almost continuously present. Immediate operation was undertaken through a median incision. On opening the hernial sac it was evident that there were several smaller sacs, one within the other. In one compartment of the sac the transverse colon was found, in another adherent omentum. Still deeper and nearer the pelvis a thick septum of the hernial sac was cut through, exposing a loop of gangrenous small intestine. The constricting ring was very deeply situated and was with difficulty cut through without injuring the intestine. After dividing this smaller constricting ring, the main ring, which was much larger but not nearly so tight, was likewise divided, and the gangrenous intestine was wrapped in hot towels and laid aside. All omental adhesions and constricting bands, of which there were still several, were ligated and cut, and the transverse colon was freed along its entire extent. The manipulations were all performed in the hernial sac outside of the general peritoneal cavity. About 16 cm. of gangrenous gut were then resected, with anastomosis by Murphy button. The colon, small intestine, and omentum were now replaced in the hernial sac, which had been transformed into one large bag. Through-and-through silkworm-gut sutures were introduced and a flat pad placed on the opening of the sac. During the operation patient was in collapse and a saline infusion was done. The patient did not respond to stimulation, and died four hours after operation.

OPERATIONS ON THE KIDNEY—5.

	Totals.
Nephropexy for movable kidney	1
Nephrotomy, exploratory	1
" for pyelonephritis	1
" " pyonephrosis	1
Nephrectomy for pyonephrosis	1

Catheterization of the ureter of the side supposed to be diseased was performed several times.

Nephropexy is performed with the aid of a few chromicized gut sutures passed through the split capsule of the replaced kidney, anchoring the organ to the aponeurosis, and at the same time as much gauze as will about equal in bulk the displaced kidney is packed into the retroperitoneal space formerly occupied by the kidney. The upper portion of the wound, a vertical one, is closed by suture and strapping; the lower portion is allowed to remain open with the end of the packing projecting. This gauze is not to be removed without reason for ten days, when it comes out with slight traction and little if any pain. It is replaced by a lighter packing and the wound allowed to close by granulation. The patient is kept in bed for three weeks. Thus far in about ten cases no recurrences have been observed.

In dealing with inflammatory diseases, secondary nephrectomy is performed rather than primary, the shock being considered much less. The case here reported was one in which the patient was a feeble old man. The actual time consumed in the operation was but ten minutes.

Pyelonephritis; Nephrotomy; Recovery.—Henry B., 20 years old, was admitted to the medical division in the service of Dr. Manges in March, 1900. For one year he had noted a difficulty in micturition with frequency of desire. There was some cough at night, but no indications of tuberculosis of the lungs. The urine, on admission, contained a heavy sediment of pus. Rectal examination showed distinct enlargement of the prostate After appropriate treatment, with but slight, if any, amelioration of symptoms, the patient was cystoscoped on March 10, and it was noted that the pus exuded from the left ureteral orifice. Tubercle bacilli were absent from the urine and no gonococci were found. The patient, indeed, said that he had never suffered from any venereal disorder. On March 13 nephrotomy was done under chloroform, but the operation showed no marked changes in the kidney or its pelvis. Never-

theless, there was great improvement in the condition of the urine, which became almost clear, with an occasional muco-purulent plug, and the general condition of the patient also became much better. On May 6 he was discharged as cured, although the urine was not perfectly normal, containing some pus.

Abscess of Kidney; Nephrotomy; Secondary Nephrotomy; Cure.—Moses M., said to be 50 years old, but looking much older, was admitted to the service of Dr. Manges on March 25, 1900. His illness, on which his past history seems to have no bearing, was of eleven weeks' duration. The symptoms were fever, constipation, emaciation, loss of appetite, and gradually appearing pain in the right hypochondrium. During the entire time the patient had noted that there was a heavy deposit of what seemed to be pus in the urine. On admission the pulse rate was 92 and the temperature normal. No tumor was felt in the abdomen. There was a very heavy deposit of pus in the urine, amounting, indeed, to half the entire volume. Examination of the sediment for tubercle bacilli as well as for gonococci was negative. On April 7, after transfer to the surgical service, operation was decided upon. The left kidney could now be distinctly palpated. It was slightly tender. Nephrotomy by transverse incision was performed, the actual opening in the kidney being about an inch long, parallel with the long axis of the organ and along its convex border. Considerable pus was evacuated and the incision carried into the renal pelvis. Drainage. There was post-operative pneumonia, evidently caused by the ether, which was the anesthetic used. Three days later the urine had become clear. About April 24, the pneumonia having resolved, chills and other septic signs recurred with the reappearance of a large amount of pus in the urine. May 1, under chloroform, a quick nephrectomy, finished in ten minutes, was performed. A silk ligature as well as a permanent clamp used for pedicle. The kidney was completely degenerated; many of the calyces contained calcareous matter. Recovery was uninterrupted. Discharged June 3.

OPERATIONS ON THE BLADDER, PROSTATE, AND URETHRA—total, 18; 4 deaths.

Bladder—12; 3 deaths.

	Totals	Deaths.
Suprapubic cystotomy for chronic cystitis and prostatic hypertrophy	2	1
" " " calculus	5	
" " " tumor	2	1
" " " " of urethra	1	
Perineal cystotomy for cystitis	1	
Celiotomy for sarcoma of prostate and bladder; peritonitis	1	1

Prostate—6; 1 death.

	Totals.	Deaths.
Prostate, carcinoma of, suprapubic cystotomy and curetting	1	
Prostatic abscess, incision	2	
Prostatectomy for hypertrophy	1	
Bottini's operation for hypertrophy	1	1
Litholapaxy for vesical calculus	1	

Prostatectomy by the suprapubic method was performed once with a result so remarkably perfect that it surpassed the most sanguine expectation.

Litholapaxy, by Chismore's method of repeated crushing, was performed in one case, and the fact that all the fragments of stone had been disposed of was made sure of by cystoscopic examination. With the aid of the cystoscope, the operations for the crushing of vesical calculi become far more accurate than they could ever be before the invention of this wonderful instrument.

A double operation for cyst of the prostatic urethra was successfully undertaken.

Prostatic Hypertrophy; Stricture of Urethra; Chronic Sepsis; Operation; Death.—Kalman R., said to be 36 years of age, but apparently at least ten years older, was admitted on June 20, 1900, suffering from retention of urine following instrumentation for the relief of a full bladder. The patient was a prostatic who had been suffering for about two years. There was marked emphysema of the lungs with chronic bronchitis. The general condition of the patient was very poor, though there was but slight elevation of temperature and the pulse rate was but 100. He was able to press out a small quantity of bloody urine with considerable difficulty, and was catheterized with much trouble on account of his small meatus and a deep stricture. Twenty ounces of urine mixed with blood were withdrawn. June 26 an attempt was made to use the cystoscope, but it failed, after enlarging the meatus, because of the bulbo-membranous stricture. June 27, under chloroform, suprapubic cystotomy was performed. Bilateral enlargement of the prostate could now be clearly made out both by sight and touch. Retrograde catheterization was practised and then perineal section and drainage. The prostate was deeply burned with the actual cautery, the patient lying on his back with the pelvis well elevated. Ten days later the man died. There had been relief of the retention, but not of the chronic sepsis. The temperature was for several days subnor-

mal and the asthenia did not respond to treatment. No autopsy.

Hypertrophy of Prostate; Acute Retention; Prostatectomy; Cure.—Isaac L., 74 years old, but hale and hearty excepting for his local trouble, entered the hospital as a private patient on September 21, 1900. He had been a patient at Mount Sinai twice before on account of the same trouble, and about four years before had been castrated with only passing amelioration. The enlargement of the prostate had begun over twenty years before the present history, and for fully twenty years not a drop of urine had been passed without the aid of the catheter. A transient albuminuria occurred at the times of his attacks of retention, when it was impossible for him to catheterize himself, and at such times expert assistance had to be called and the patient had to be treated by rest in bed, washing of the bladder, etc. There was never any sign of stricture, and a full sized sound always passed with ease. On admission there was great vesical tenesmus with considerable pus and mucus present in the urine. There had been very little sleep and the patient was quite worn out. Palpation by rectum revealed moderate prostatic enlargement, but from without a hard mass could be felt above the brim of the pelvis, which was thought to be the very much thickened bladder wall. There had never been hematuria, so, taking into consideration the history, the idea of the presence of a neoplasm was scarcely entertained. Four days after his admission, the acute symptoms having subsided, an operation for the removal of the prostate was performed. Under chloroform anesthesia, suprapubic cystotomy, with the aid of air dilatation, was done, the vertical incision being two and one-half inches long. The finger at once detected a prostate much larger within the bladder than the examination by the rectum would have led one to imagine. There was a large median pedunculate lobe and two large lateral lobes. The median lobe acted exactly like a perfect ball-valve, permitting the introduction of an instrument, but absolutely preventing the escape of fluid. The mucous membrane over the middle lobe was incised with scissors, and this lobe, together with the left lobe, was removed with the fingers by shelling the mass out and leaving the mucous membrane. The right lobe was then removed in a similar manner, a small perineal incision made on a sound pushed into the perineum through the suprapubic opening, and perineal drainage, as well as suprapubic siphon drainage, established. The operation was completed in about twenty-five minutes. Hemorrhage was astonishingly slight. No shock followed and recovery was practically uninterrupted. The perineal drainage was not satisfactory and the tube was removed after a

few days. November 14, three weeks after the operation, the patient began to pass urine by the natural channel, voiding about four ounces at a time. On October 18 he was discharged perfectly well and passing all his urine through the urethra. At the time of the present writing (February 15, 1901) Mr. L. is in excellent health. He urinates about four times a day and once or twice at night. There is no residual urine. The prostate was fibromatous and weighed 41 grammes.

Prostatic Hypertrophy; Chronic Nephritis; Bottini's Operation; Secondary Hemorrhage; Suprapubic Cystotomy; Pneumonia; Death after Three Weeks.—Isaac L., 50 years old, admitted July 1, 1900. Patient stated that his stream of urine had been small for a long time, but was expelled a considerable distance from the body. There had been no tenesmus or straining, and the patient had been able to retain his urine four hours; occasionally he had to get up at night to urinate. On exertion, such as walking upstairs, however, he had the desire to urinate at once. There was no interruption of the stream and the urine had always been clear. Four days before admission, after exposure to cold, patient found he was unable to urinate; since then he had been catheterized repeatedly. Examination showed the presence of emphysema, chronic bronchitis, chronic nephritis, and enlargement of the liver. He was given urotropin, bladder irrigations, and was catheterized every four hours. July 4: Temperature 101.6° to 102.8°. July 16: Temperature normal; urine acid, contained no albumin. July 17, under chloroform anesthesia, after meatotomy was done, a cystoscopic examination was made. The prostate bled readily and interfered with the examination. Freudenberg's Bottini instrument was then introduced and three grooves were burned into the prostate, one in the median line and one on each side. A catheter was inserted and allowed to remain in the bladder to determine the presence of any subsequent hemorrhage. For twenty-four hours following the operation there was no bleeding. Patient complained so much about the presence of the catheter that it was removed by the house surgeon at 6 P.M., and patient was ordered to be catheterized every two hours during the night. There was no bleeding following catheterization until 6 A.M. July 19. During the 19th, in spite of hot bladder irrigations, the hemorrhage did not cease. At 8 P.M. the pulse was very feeble, patient was restless, pale, and thirsty. Under local anesthesia epicystotomy was rapidly performed. The bladder, which was found distended with blood, was emptied and packed with gauze. During the night intravenous infusion was performed three times and patient's condition improved somewhat. July 21: Temperature 102°, pulse 140. No

further hemorrhage. July 23: Temperature 102°, pulse 118. Patient remained in about the same condition until July 27, when he had temperature 104°, pulse 130, respiration 48. There were some signs of consolidation at the right apex. July 31: Temperature 102.4°, some cough. August 4: Temperature 101°, respiration 36 to 48. August 5: Temperature 99.6 to 101.4°, pulse 100 to 115, respiration 36 to 56. August 6: Temperature 104°, respiration 56. Death.

Sarcoma of Prostate and Bladder; Celiotomy; General Peritonitis; Death.—Julius S., 48 years old, admitted March 12, 1900. For ten months previous to his admission to the hospital patient had a gradually increasingly frequent desire to urinate. Four days before his admission he noticed blood in his urine for the first time. He had always been constipated, but had never noticed blood or mucus in his stools. Patient admitted having lost considerable flesh. No syphilitic history could be obtained. The abdomen was distended and tympanitic, but there was no evidence of free fluid. In the median line there was flatness from a point three fingers' breadth below the umbilicus down to the symphysis. The hypogastrium was the seat of a hard globular mass occupying the position of the bladder. The mass was slightly movable. By rectal examination a hard mass was readily felt. A median celiotomy revealed a large retroperitoneal tumor, with old adhesions of intestine over it. The tumor was chiefly behind the bladder, which it had pushed upwards and forwards, and it evidently originated in the prostate. The tumor was the size of a child's head, and was firmly adherent to the floor and lateral walls of the pelvis. A small piece of the growth was removed for examination. The wound was closed with through-and-through silkworm-gut sutures. Two days after operation the tumor was aspirated in three places, but only blood was obtained. Eight days after operation patient passed blood and pus per urethram. In the meantime he had had considerable abdominal pain, the abdomen had become distended, and the bowels had been moved with difficulty. The abdominal pain and distension increased, the pulse became more and more feeble, constipation became more and more absolute, and the patient died on the twelfth day after operation.

Vesical Calculus; Litholapaxy; Cure.—Hyman G., 60 years old, was admitted on June 26, 1900, suffering from the rational symptoms of vesical calculus. A stone had been removed by suprapubic section in this hospital one and a half years ago, since when the patient had been free from symptoms for a year, when frequency of micturition began. The searcher was passed on June 29 and a small stone detected. Litholapaxy in

three sittings was performed and the patient discharged cured on July 19, after cystoscopic examination had demonstrated the absence of stone. At the final litholapaxy the vesical mucous membrane was lightly nipped, although the bladder was not cocainized. The cystoscope showed a reddened area in the right of the trigonum, the probable result of this mishap.

Cyst of Prostatic Urethra; Operation; Recovery.—Samuel B., aged 35, was admitted April 8, 1900, having been sick five and one-half months. There had been pain in the region of the bladder with frequent micturition. At the time of his coming to the hospital he was obliged to urinate every fifteen minutes and the act was accompanied by much pain, especially at its close. The first urine was clear, the latter portion bloody. The searcher was passed, but nothing abnormal within the bladder was detected. The capacity of the viscus was three ounces, one of which was residual. The urine was turbid, containing some red blood cells, some pus, a trace of albumin, but no tubercle bacilli. April 10, under chloroform, suprapubic cystotomy was performed. When the finger was passed into the urethra from the bladder, a mass the size of a buckshot, but quite soft, was felt in the floor of the urethra and slightly to the right side. Perineal section through a curved incision, the concavity downward, was now performed, and the finger was inserted so that it met another finger passed in through the bladder. The tumor was now found to have disappeared. It was concluded that the mass was probably cystic and that it had ruptured. Considerable bleeding occurred, so that the bladder was packed with gauze. Perineal drainage. Dry dressing. May 1: Sounds to No. 30 were passed, causing considerable bleeding. The urinary symptoms now subsided and the patient was discharged cured on May 17, the bladder holding ten ounces.

URETHRA—6.

(See also Bladder, etc.)

	Totals.
Urethrotomy, internal, for stricture	1
" external, " "	2
Periurethral abscess, incision	2
Urethral fistula, curetting	1

OPERATIONS ON THE TESTIS—13.

Varicocele, extirpation	4
Tumor, excision	2
Hydrocele, Volkmann's operation	7

OPERATIONS ON THE PENIS—1.

Dermoid cyst of prepuce	1

The dermoid of the prepuce formed a tumor the size of a very large olive. It occurred in a man 31 years old, who said that it had been noted shortly after birth. The tumor was painlessly extirpated under eucaine.

OPERATIONS ON THE RECTUM, ANUS, AND ANAL REGION—total, 48; 2 deaths.

	Totals.	Deaths.
Dilatation of sphincter ani for fissure	1	
Fistula in ano opened and packed	12	
Hemorrhoids, clamp and cautery operation	23	
" ligature operation	3	
" Whitehead's operation	1	
" carbolic acid injections	1	
Ischio-rectal abscess, incised and drained	3	
Atresia of rectum, incision	1	
Stricture of " "	1	1
" " anus "	1	1
Dermoid cyst of sacro-coccygeal region	1	

The value of Whitehead's operation, in properly selected cases, was well illustrated. The patient was an employee of the hospital, who suffered from hemorrhoids and prolapse. The clamp and cautery had been used with little relief. Full resection of the pile-bearing mucous membrane was followed by primary union and perfect cure.

SKIN GRAFTING (THIERSCH'S METHOD)—1.

The modification of this operation, which has given excellent results, is that of dressing the grafted surface with a single layer of dry gauze, upon which a firmly bandaged, thick elastic dressing is applied. The wound is not inspected for four or five days, when primary adhesion is usually found to have taken place. The firm pressure holds the grafts in accurate contact, so that any exudate which may form cannot lift the graft away from the raw surface.

MISCELLANEOUS OPERATIONS—total, 21; 1 death.

	Totals.	Deaths.
Perineorrhaphy	1	
Secondary suture	3	
" " after appendicitis	8	
Hematocolpos, incision	2	1
Aspiration of chest for empyema	1	
Lipoma of shoulder, excision	3	
Sarcoma of neck	2	
" " groin	1	

Hematosalpinx; Hematometra; Hematocolpos; Vaginal Incision; Acute Sepsis; Death.—Minnie G., 26 years old, admitted July 14, 1900. Patient began to menstruate when 17 years old and had always been quite regular. For past year had had a leucorrheal discharge, at times profuse. Eight months before admission patient had been curetted. At that time, under anesthesia, a cystic tumor could be felt to the right of the uterus. The curettage was followed by a diminution of the discharge. Patient then married. Five weeks before admission to the hospital patient suddenly developed a profuse yellowish discharge from the vagina. The discharge was acid, micturition was painful, and there was some fever. On admission patient was menstruating for the second time since the attack began. Menstruation began five days before admission. It was accompanied by pain, located chiefly in the right iliac and umbilical regions. Three days before admission there had been a chill, and since then fever had been continually present. Temperature ranged from 100.4° to 103° in the evening. Patient vomited frequently. The right iliac fossa was occupied by a globular tumor the size of an orange. The tumor was dull on percussion and somewhat tender; it extended into the false pelvis, and appeared to be adherent to the uterus. By vagina a cystic tumor was felt projecting from the right wall of the vagina, almost to the vulva (evidently a hematocolpos). July 17: Under gas and ether anesthesia, the bulging mass on the right side of the vagina was aspirated and found to contain very foul, decomposing blood. A free incision was then made and a large amount of foul blood and pus evacuated. A finger was then introduced into this cavity, and, high up, a second cervix could be felt. The septum between the two vaginæ was then excised. The newly-found cervix was then dilated, but no more blood or pus escaped. The abdominal mass was still quite large, although smaller than it had been, and was now believed to be a second uterus with an adherent hematosalpinx. The vagina was packed with gauze and patient returned to bed about 3:30 P.M. At 4 P.M. temperature was 103°; at 5 P.M., 104°. During the evening patient was delirious and later became maniacal. Morphine, hyoscine, and phenacetine were without effect. The temperature rose steadily during the night. At 4 A.M. it was 108.6°; at 5 A.M. it was 109.4°. In spite of active stimulation and saline infusion patient died sixteen hours after operation. No autopsy.

Hematocolpos; Double Genital Tract; Incision and Drainage; Cure.—Ernestine F., an unmarried girl of 17, came to the hospital with a tender, semi-fluctuating mass in the right

iliac fossa which impeded urination so that the patient had to make external pressure upon the abdomen in order to accomplish micturition. There had been pain and uneasiness in the lower abdomen and legs for three months. Menstruation had been regular until about a month before admission. Since then the patient has menstruated twice. On admission the pulse rate was 118 and the temperature 100°. A soft, fluctuating, bulging mass could be felt through the rectum, and it seemed to fill and distend the right half of the vagina. On April 20, 1900, the day after admission, the mass was punctured at the vagina, the patient being under general anesthesia, and dark, tarry fluid was withdrawn. The opening was somewhat enlarged with the scalpel, a drainage tube was inserted and about fifty ounces of the fluid evacuated. A cervix could be felt in the left vagina. Recovery was prompt and complete.

Ovarian Cyst with Twisted Pedicle; Operation; Recovery.—Rosie W., 60 years old, was admitted January 20, 1900, with intestinal obstruction of three days' standing. Patient said that she had had other similar attacks. The usual symptoms were present. A large, movable abdominal tumor had been noted for a year. On examination this tumor was found to occupy the right iliac region, extending toward the flank. It was dull on percussion. Immediate operation was performed, under chloroform anesthesia, and a cystic ovarian tumor, with its pedicle twisted two and one-half times, was removed and the abdomen closed with drainage. Healing was prompt, with the exception of a stitch abscess, and the patient was discharged recovered on February 11.

INCISION AND DRAINAGE—total, 56; 3 deaths

For Phlegmon—28.

	Totals.	Deaths.		Totals.	Deaths.
Of neck	6		Of hand, diabetic	1	1
" " angina Ludovici	1	1	" arm	2	
" finger	1		" thigh	5	
" hand	8		" foot	4	

For Abscess—25.

Of neck	9	Intramural, abdominal	2
" axilla	2	Of groin	3
" arm	1	" thigh	2
" chest	4	" psoas	2

For Carbuncle—2.

Of shoulder	1	Of neck	1

Lymphedema of neck 1

Suppurative Femoral and Pelvic Lymphangitis (mistaken for femoral hernia before admission); Incision and Drainage; Cure.—Frederic J., 16 years old, admitted December 28, 1899. Four weeks before, after playing, patient noticed a small, tender swelling in left groin. No vomiting, no constipation, did not remain in bed. Pain and tenderness disappeared, but tumor remained. Three weeks later pain and tenderness returned, and since then the boy had been in bed. His physician thought he had a femoral hernia, which he daily attempted to reduce, apparently finally with success, as the swelling below Poupart's ligament disappeared. Examination before admission to the hospital failed to reveal any hernia. On the left ankle there was an old eczematous patch. Occupying the left iliac region there was a large, tender mass which extended to the median line and upward to the umbilicus. This area was dull on percussion and exquisitely tender. The rest of the abdomen was also tender and there was moderate tympanites. The femoral glands on the left side were somewhat enlarged. Temperature 103.2°, pulse 118, respiration 26. Immediately after admission an incision was made along the outer border of the left rectus muscle and a large abscess, completely walled off from the peritoneal cavity, was opened and drained. Recovery was uneventful.

Three histories follow which typify certain phases of acute fatal sepsis. In two of the patients the presence of staphylococcus aureus in the circulating blood, as well as in the suppurating foci, was ascertained before death.

Phlegmon of Chest Wall; Pneumothorax; Multiple Incisions; Death.—Ignatz G., 39 years old, had a painful swelling under the right shoulder joint for four days, which gradually spread down over the front of the chest. He had considerable dyspnea for two days and his physician diagnosticated right pneumothorax. The patient was admitted on January 24, 1900, in a very septic condition, with a large, indurated mass on the right side, extending anteriorly from the clavicle to the fifth rib and from the median to the axillary lines. Temperature 102.8°, pulse 152, respiration 26. Operation was done at once; several incisions were made into the mass and some thick, dark pus evacuated. Aspiration of thorax drew only gas, confirming diagnosis of pneumothorax. After the operation the patient grew steadily worse; he was delirious and deeply cyanosed. The temperature and pulse gradually rose until death occurred about twenty-four hours later.

Acute Septic Osteomyelitis of Femur; Staphylococcemia; Death.—Michael G., 6 years old, sustained injury to hip four days before admission; pain, fever, vomiting, and delirium for one day; was admitted to medical division and transferred to surgical division on July 26, 1900. Child was comatose; thigh held flexed at the hip; movements of hip joint limited; head of femur tender on pressure. General condition very poor, pulse weak and rapid, patient looked very septic. Operation. Head of femur exposed; aspiration of hip joint negative; marrow of upper end of femur was deeply congested, as was that of ilium just above acetabulum. Spreads from marrow showed staphylococcus aureus in large number. Condition of patient so poor that further efforts had to be suspended. The wound was drained. The patient's condition did not improve and he died sixteen hours later. Cultures from the bone marrow and the blood before death showed the presence of staphylococcus aureus in pure culture.

Staphylococcemia; Metastatic Abscesses; Pericarditis; Death.—Reuben S., 5 years old, was transferred from the children's ward to the second surgical division on October 2, 1900. There had been a fall upon the hip, and at the time of the transfer there was a large, fluctuating mass over the left hip and the upper portion of the thigh. Aspiration under chloroform withdrew grumous pus, so a free incision was made and a quantity of the same material evacuated. The periosteum and bone appeared normal, so the case was supposed to be one of infected hematoma; the cavity was packed and the patient put to bed. Blood culture revealed the presence of staphylococcus aureus. Immediately after the operation the pulse was 148 and the temperature rose to 103.6°. There was little relief and other abscesses were diligently searched for. On October 7 a collection of pus was discovered and drained. It was situated near the spine, between the eighth and ninth ribs, and contained about half a pint of pus. The probe entered for about four inches upward and inward. There was slight amelioration after this operation, but diarrhea became annoying. Culture from the pus showed the same variety of organism as that found in the blood. October 11: Leucocytes 22,000. Pericarditis with loud friction sounds appeared. The pulse rate rose to 150 and the urine became albuminous and scanty. No casts were discovered, however. October 14: A small abscess of the sclera was incised, and the next day a collection of pus near the left shoulder was drained. The urine became non-albuminous and negative. The pericarditis persisted. Death occurred on the 18th. No autopsy.

OPERATIONS ON THE BREAST—9.

	Totals.	Deaths.
Fibroma, excision	1	
Adenoma, "	3	
Carcinoma, amputation	3	
" recurrent, excision	1	
Mastitis, acute suppurative, incision	1	
Cervical lymph nodes—2.		
Tuberculous, excision	2	
Axillary lymph nodes—4.		
Tuberculous, excision	3	
Chronic inflammatory, excision	1	

OPERATIONS ON BLOOD VESSELS—3 operations on 2 patients, 2 deaths.

	Totals.	Deaths
Ligation of abdominal aorta for aneurism	1	1
Excision of external carotid for tumor of face	2	1

The case of endothelial sarcoma, treated after the manner advised by Dawbarn, *i. e.*, excision of the external carotids, gave a fatal result from shock within a few hours. The operation should have been performed upon one side at a sitting, but the patient was an old and nervous man, who would allow but one operation. Hemorrhage was insignificant, but the sarcoma was sloughing and very fetid, so it is not improbable that absorption may have hastened his end.

The history of a case of aneurism of the abdominal aorta, with distal ligation and wiring, will be found here. The ligation was not performed with any idea but to change the character of the blood current. The case was otherwise inoperable. Death seemed to be directly caused by some toxic absorption, perhaps a fibrin ferment.

Sarcoma (endothelial) of Superior Maxilla; Suppurating; Extirpation of both External Carotids; Death.—Louis E., 64 years old, was admitted on the 14th of November, 1900, suffering from an infected tumor of the right upper jaw. The patient was feeble and septic. Operations for drainage were at once performed, and on November 24, after receiving the pathological report of a portion of the growth which had been excised, the patient was chloroformed and both external carotids were excised as far as the internal maxillary branches. The patient suffered from severe shock after the operation, from

which he did not recover, dying within twelve hours. There had been remarkably little hemorrhage during the operation.

Aneurism of Abdominal Aorta; Operation; Death.—Jacob F., aged 46, was admitted to the service of Dr. Manges on June 20, 1900. For four and one-half months there had been severe pain in the back on both sides, radiating down the thighs. Physical examination showed a pulsating tumor at the level of the twelfth dorsal and first lumbar vertebra at the right side of the spine, and at the level of the tenth and eleventh dorsal on the right side. There was no bruit and no thrill. Various forms of medical treatment were carried out, but without avail. The tumor increased steadily in size and bruit gradually became distinct. The pulsation was of a violent throbbing character. July 11: The patient was transferred to the surgical service for operation. A median laparotomy about five inches in length disclosed a large, pulsating mass extending above from the aortic opening in the diaphragm to four inches below. The mass lay across the spinal column, extending more to the right side, lying just above the kidney, on that side which was exposed in the wound and to which the mass was not apparently connected. The mass also extended for two or three inches to the left of the spine. The walls of the tumor were hard and seemed to be continuous with the aorta, its pulsations being synchronous with it. The aorta was exposed by packings and then isolated just above its bifurcation. It was encircled by a narrow cotton tape, which was secured, after tightening, by means of a silk ligature. Constriction was made just enough to obliterate pulsation in the femorals. Abdominal wound closed by through-and-through suture with silkworm gut. As might have been expected, the tumor gradually and quite rapidly increased in size. The pulsation in the femorals returned the day after the operation. The patient steadily lost ground as the tumor enlarged, and when the skin over the mass began to redden, about a week after the laparotomy, ten yards of fine piano wire were inserted through a needle into the sac of the aneurism. Deterioration was now markedly increased in rapidity, and death occurred, without rupture, on July 28, seventeen days after the first operation. A limited autopsy showed that there had been a great deal of coagulation around the wire, and it was suggested that the patient had perhaps died of some form of poisoning by a fibrin ferment. This was the more probable, since no evidences of infection were discovered, yet the temperature had been considerably elevated for several days before death. The aneurism was primarily of the aorta, but gradual erosion had caused it to become a dissecting aneurism. The tape was perfectly aseptic and had constricted the vessel so that its lumen was about the calibre of a crowquill.

Causes of Death—total, 75.

	Operation.	No. operation.
Abscess of lung, empyema, subphrenic abscess	1	
" " hip, staphylococcemia	1	
" " liver, sepsis	1	
Aneurism of abdominal aorta	1	
Aneurisms of splenic artery, ulcerative endocarditis	1	
Appendicitis, abscess, sepsis	2	
" general peritonitis	12	1
" " " intestinal obstruction	1	
" " " abscess	3	
" subacute pneumonia	1	
Angina Ludovici, sepsis	1	
Carcinoma of abdominal viscera	1	
" " bladder, sepsis		1
" " liver	1	
" " esophagus	1	
" " pancreas	1	
" " stomach	1	
" " transverse colon	1	
Cholelithiasis, secondary hemorrhage	1	
" (common duct)	2	
Echinococcus cyst of liver	1	
General miliary tuberculosis		1
Extradural hemorrhage, meningitis		1
Fracture of skull, subdural hemorrhage	2	
Hematocolpos, hematometra, hematosalpinx, sepsis	1	
Harelip, double, pneumonia after operation	1	
Hernia, strangulated femoral gangrene of gut	1	
" " umbilical " " "	1	
" " " pneumonia	1	
" " inguinal	2	
Hydrocephalus, chronic	1	
Intestinal obstruction, Meckel's diverticulum	1	
Intussusception	3	
Intestinal obstruction, chronic, adhesions	1	
Osteomyelitis, acute infectious, of femur	2	
" of inferior maxilla	2	
" " tibia	1	
Perforation of intestine(?), general peritonitis	1	
Phlegmon of face, malignant endocarditis	1	
" " chest, pneumothorax	1	
" " hand diabetic coma	1	
Papilloma of bladder	1	
Prostatic hypertrophy, pulmonary embolism		1
" " chronic sepsis	1	
" " nephritis, pneumonia	1	
" tumor	1	
Rupture of small intestine, traumatic	1	
Sarcoma of prostate and bladder, general peritonitis	1	
" " small intestine	1	
" " superior maxilla	1	
Stricture of anus, asthenia (infant)	1	
" " rectum, general peritonitis	1	
Tumor of cerebellum	1	

XX.

SIMULTANEOUS FRACTURE OF THE VAULT AND BASE OF THE SKULL; OPERATION; RECOVERY.

By Howard Lilienthal, M.D.,

ATTENDING SURGEON.

On September 27, 1899, at about 4 P.M., little Leroy T., 5 years old, was found unconscious at the foot of a rocky cliff which formed the side of an excavation sixteen or eighteen feet deep. He was carried to the sidewalk above by a passer-by, who then left him, and he lay there, still unconscious, until his relatives found him. He was bleeding from his right ear, his nose, and his mouth, and from a short wound of the left temporo-parietal region. The family physician, who was immediately sent for, wisely refrained from probing the wound, simply covering it with a wet dressing and applying an ice-bag to the patient's head. Two or three hours later I saw the boy. He was unconscious, but I was told that he had been partially aroused several times, always lapsing into coma when the stimulus was withdrawn. He resisted being in any way disturbed. His eyes were closed and on raising the lids were seen to be slightly "crossed." No other signs of paralysis were discovered. The pulse was somewhat accelerated but remained regular, the respirations were normal as to rate and depth, and the temperature was 101°. There was a slight contusion at the root of the nose and dried blood at the nostrils. I was told that blood had been vomited. A profuse, watery, blood-stained discharge exuded from the right auditory meatus. In the left temporo-parietal region, just within the hair line, there was a wound about half an inch in length. It was clean-cut, looking almost as if it had been made with a knife. The physical examination yielded nothing further of importance. Nothing abnormal was to be felt in the pharynx.

It was recognized that a fracture of the base of the skull existed, passing through the middle fossa on the right side, and from the absence of signs of violent external injury, other than the wound of the left temporo-parietal region, I believed that

the basal fracture was the result of indirect force applied at the site of the scalp wound. The slight contusion of the nose seemed to me to account for the blood about the nostrils, as well as for that which had been vomited. Whether there was a fracture of the left vertex as well could only be surmised without exploratory incision, for there was no appreciable deformity. At my advice, the patient was admitted to a private room at Mount Sinai Hospital. The urine, examined on admission, was acid and contained sugar but no albumin. It was loaded with urates and was of a specific gravity of 1.030. At the examination of the urine, some hours after the operation, the sugar had disappeared. Quantitative estimation was not made. Under chloroform the scalp wound was extended and a depressed fracture disclosed. A horseshoe scalp flap, with the pedicle below and the original wound at its centre, was now turned back to facilitate further operative work. The line of the break which ran through the wound extended from the coronal suture backward and downward in the parietal bone and the squamous portion of the temporal. The depression was below the line of fracture, the direction of which was from before backward, and the space was filled out by the hemorrhage into the tissues, so that it could not be mapped out or even discovered before the incision was made. The depressed bone was so firmly wedged that, in spite of the usual procedure of chiselling away a portion of the uninvolved bone to make room for the lever, it was deemed unsafe to make use of sufficient force to pry the temporal into place for fear of further fracture with injury to the dura. After removing with the rongeur a large piece of the depressed bone, the remainder was satisfactorily forced into its normal position. The area of bone removed was a little larger than that of a silver half-dollar. Hemorrhage, which was quite free, was controlled by gauze packings and very hot water. A few vessels required ligation. A gauze packing was laid over the dura where the bone had been removed, its extremity being led out at the upper and posterior part of the wound. A few silk sutures held the skin flap in place and a dry elastic dressing was applied.

The patient left the table in excellent condition, having required but little stimulation. Soon after the operation there was bloody vomiting and the temperature rose to 102°, the pulse rate advancing to 154. The convergent squint was now quite marked, though it had been barely noticeable just before the operation. There was great restlessness and the patient was quieted with Magendie's solution in a dose of one minim. There was slight twitching of the left hand and arm. During the twenty-four hours sixteen ounces of urine were voluntarily

passed. The oozing of bloody fluid from the right ear continued. The boy slept the greater part of the time, though he could be aroused and appeared sane. He was nourished by rectum. On the third day the bowels were moved with the aid of calomel. Coma was still present, strabismus was more marked, and the tongue deviated to the right on protrusion. The voluntary movements of the hands were distinctly ataxic. The fourth day the child's temperature rose to 105°; the pulse, the rate of which was 148, became weak and irregular, and there was slight though unmistakable rigidity of the neck. The coma deepened so that the patient could scarcely be aroused. Calcium monosulphide was administered in doses of one-tenth of a grain every four hours, on the general principle that the drug is supposed to exert a favorable action in suppurative processes. The wound was dressed and the packings removed, but nothing unusual was seen. An ice-bag was ordered for the occipital region.

The following day, the fifth after the operation, the general condition was unchanged, but the bowels moved involuntarily and catheterization became necessary. The ear still discharged bloody fluid. From this time there was steady and constant improvement until the 10th of October, fourteen days after the accident, when the patient was discharged recovered. The stitches had been removed on the seventh day, the union being perfect, excepting at the point where the drain had emerged, where there was a small granulating area which soon closed. The discharge from the ear had not entirely ceased until the eleventh day, while the squint still persisted, though it appeared to be less marked than it was.

This case, besides illustrating the fact that painstaking work will sometimes reward the surgeon in an unexpected manner, emphasizes the importance of exploratory incision in suspected cranial injury. If there is no fracture the incision can scarcely do harm, while if the turning back of the scalp flap discloses a bone injury the operation is amply justified.

The guide as to whether or not exploratory incision is indicated is, as in most cases of imperative surgery, the progressive aggravation of the symptoms.

I cannot help believing that in this instance the operation upon the vertex exerted a favorable influence upon the basal fracture. It has been suggested by various surgeons that the opening of the cranium would be a rational procedure when the seat of the injury itself is beyond reach, and also in cases

of grave concussion in which it is supposed that cerebral edema threatens the life of the patient.

This is a difficult point to prove by animal experimentation, because of the impossibility of artificially producing the condition desired. We are, therefore, obliged to gain our knowledge from the results of chance experiments upon human beings such as the one herein recounted.

XXI.

GYNECOLOGICAL SERVICE.

PAUL F. MUNDÉ, M.D.

GYNECOLOGIST.

JOSEPH BRETTAUER, M.D.,

ADJUNCT GYNECOLOGIST.[1]

PATIENTS admitted		928
" cured		742
" improved		75
" unimproved and not treated		81
" died		30
NUMBER OF DISEASES		1,225
Vulva		7
Perineum		51
Urethra and bladder		17
Vagina		180
Uterus		638
Ovaries		57
Tubes		151
Pelvic peritoneum		67
" cellular tissue		14
Miscellaneous		43
OPERATIONS		1,082
Abdominal sections		96
Vaginal "		86
Minor operations		900
Vulva		7
Urethra and bladder		16
Perineum		51
Vagina		158
Rectum		15
Uterus		610
Cervix	164	
Body	446	
Miscellaneous		43

SYNOPSIS OF DISEASES (1,225).

VULVA—7 cases.		URETHRA AND BLADDER—17 cases.	
Epithelioma	1	Caruncle	8
Vulvo-vaginal abscess	3	Vesico-vaginal fistula	5
Vulvo-pelvic "	1	Chronic cystitis	4
Kraurosis	1		

[1] The Adjunct Gynecologist had charge of the service from June 1 to October 1.

PERINEUM—51 cases.

Laceration, complete	14
" incomplete	35
Fistula	2

VAGINA—158 cases.

Cystocele	57
Rectocele	90
Epithelioma	2
Atresia	3
Ischio-vaginal fistula	1
Melanosarcoma	2
Condylomata, acute	2
Impacted pessary	1

RECTUM—15 cases.

Syphilitic stricture	1
Hemorrhoids	12
Fistula in ano	2

UTERUS—638 cases.

Cervix—166 cases.

Lacerated cervix	127
Stenosis	26
Hypertrophy	4
Carcinoma	8
Polypus	1

Body—472 cases.

Chronic endometritis	271
Retroversion and retroflexion	41
Prolapsus	20
Fibroids	29
Retained secundines (incomplete abortion)	105
Anteflexion and stenosis (sterility)	38
Fibrocystic tumor	1
Polypus	4
Carcinoma	3
Fibrosarcoma	1

OVARIES—52 cases

Cystic tumor	29
Dermoid tumor	4
Intraligamentous tumor	6
Abscess	9
Carcinoma	4

TUBES—112 cases.

Pyosalpinx	18
Hydrosalpinx	1
Chronic salpingitis	81
Ectopic pregnancy	12

PELVIC PERITONEUM AND CELLULAR TISSUE—81 cases.

Pelvic peritonitis (exudate)	37
" abscess	30
" hematoma	13
Parovarian cyst	1

MISCELLANEOUS—43 cases.

Cholelithiasis	2
Catarrhal appendicitis	5
Ectopic pregnancy, cholelithiasis, impacted ureteral calculus; double pyelonephritis, 3 abdominal, 1 vaginal, 2 renal sections	1
Postpartum pyemia	1
Acute ulcerative appendicitis	1
Pyonephrosis	2
Pyonephritis	3
Impacted fibroid and intestinal obstruction	1
Irreducible inguinal hernia and uterine fibroid	1
Neurasthenia	2
Prolapse of uterus; intestinal obstruction	1
Appendicitis; salpingo-oöphoritis; general peritonitis	2
Cystocele, rectocele, umbilical hernia	1
Ischio-rectal abscess	2
Leukemia	1
Hyperemesis graviditatis	1
Phlegmon of anterior abdominal wall	1
Salpingo-oöphorectomy for recurrent carcinoma mammæ	1
Retention of urine	1
Lymphosarcoma of intestines	1
Not gynecological	9

SYNOPSIS OF OPERATIONS (1,082).

VULVA—7 operations.

Excision of epithelioma	3
Vulvo-vaginal abscess	3
Plastic for kraurosis	1

URETHRA AND BLADDER—16 operations.

Excision of caruncle	8
Dilatation of urethra	1
Cystoscopy	2
Vesico-vaginal fistula	5

PERINEUM—51 operations.

Laceration, complete (flap-splitting)	14
Laceration, incomplete (including prolapsus cases)	35
Fistula	2

VAGINA—158 operations.

Anterior colporrhaphy	60
Posterior "	90
Lateral " for prolapsus	2
Cyst of posterior vaginal wall	2
Excision of sarcoma	1
Removal of impacted pessary	1
Excision of hymen for atresia vaginæ	1

RECTUM—15 operations.

Excision of coccyx	1
Hemorrhoids	11
Rectal polypus	1
Fistula in ano	2

UTERUS—610 operations.

Cervix—164 operations.

Laceration (trachelorrhaphy)	127
Discission and dilatation for stenosis	26
Amputation for hypertrophy and prolapsus	9
Amputation for carcinoma (galvano-cautery wire)	3
Excision of cervical polypus	1

Body—464 operations.

Curetting for endometritis, menorrhagia, and retained secundines	375
Shortening of round ligaments (Alexander's)	55
Abdominal hysterectomy for fibroids	6
Vaginal hysterectomy for fibroids	3
Removal of uterine polypus	4
Abdominal hysterectomy for tubo-ovarian abscess	2
Morcellement for uterine fibroids	3
Enucleation of submucous fibroids	5
Vaginal hysterectomy for carcinoma	10
Vaginal fixation for retroversion	2
Induction of premature labor	4
Dudley's operation for anteflexion	2
Curetting for carcinoma uteri	2

OVARIES AND TUBES—96 operations.

Abdominal section for—	
Ovarian tumor	52
Parovarian cyst	1
Normal oöphorectomy (recurrent carcinoma mammæ)	1
Ovarian abscess	8
Diseased appendages	26
Hydrosalpinx	2
Ventral fixation	4
Pelveo-abdominal abscess	1
Intraperitoneal hematocele	1

Vaginal Celiotomy—86 operations.

For pelvic abscess	50
" ovarian cyst	4
" " " intraligamentous	2
" ectopic pregnancy	4
" salpingo-oöphoritis	9
" pelvic hematoma (extraperitoneal rupture, ectopic pregnancy)	14
" ovarian abscess	2
Exploratory	1

MISCELLANEOUS—43 operations.

Celiotomy to close fecal fistula,	1
Cholecystotomy	1
Nephrotomy for pyonephrosis	
Nephrectomy " "	1
Vaginal section for impacted stone in ureter	1
Celiotomy and vaginal section for diffuse peritonitis	1
Colostomy for carcinoma of rectum	1
Inguinal abscess	1
Laparotomy for breaking up pelvic adhesions	1
Exploratory celiotomy for carcinoma of ovaries, omentum, etc	3
Celiotomy, intestinal resection, for lymphosarcoma	1
Phlegmon of abdominal wall	2
Exploration of abdominal sinus after celiotomy	3
Nephropexy	1
Enterorrhaphy for closure of fecal fistula	2

Causes of Death.

General peritonitis	14
after abdominal section (septic)	5
" vaginal section	2
" enterorrhaphy for fecal fistula	3
" ulcerative perforation of intestine	1
" rupture of pyosalpinx	1
" rupture of uterine abscess	1
" impaction of pedunculated fibroid	1
Postpartum sepsis (admitted with sepsis or retained secundines, one hysterectomy)	6
Puerperal pyemia	1
Post-operative shock (practically moribund when admitted)	3
Uræmia (albuminuria of pregnancy)	2
Double pyelonephritis	1
Pneumonia	1
Lymphosarcoma of intestines	1
Acute endocarditis	1
	30

Deaths after Abdominal and Vaginal Sections.

Abdominal section—96 operations.

General septic peritonitis (ovarian abscess, 2; ventrofixation, 2; impacted fibroid, 1)	5
Post-operative shock (admitted in collapse)	3

Vaginal section—86 operations.

Ovarian abscess, general peritonitis	2
	10

REMARKS AND CASES.

By Paul F. Mundé.

The inevitable similarity of the pathological conditions occurring in the comparatively limited area of the female pelvis necessarily involves a more or less constant repetition of diseases and methods of treatment, which have already been described in Vol. I. of these Reports (pp. 238 and 252 to 264).

There has been no special change in my practice since that report was written, and I have merely to mention my continued approval of Alexander's method of shortening the round ligaments for retroversion and retroflexion; of Emmet's operation for lacerated cervix, with occasional modifications (amputation, Schroeder's excision of cervical mucosa); of the crucial incision with excision of the four flaps for stenosis of the external os; of the flap-splitting operation for complete laceration of the perineum; and of the Hegar operation for rectocele, and

the Stoltz method for cystocele. A few times Emmet's operation of bilateral denudation was performed for rectocele and lacerated perineum with gratifying success. I have likewise continued the practice, impressed upon me by many years of observation of these cases, of operating on only such fibroid tumors of the uterus as presented in, and could be readily re-

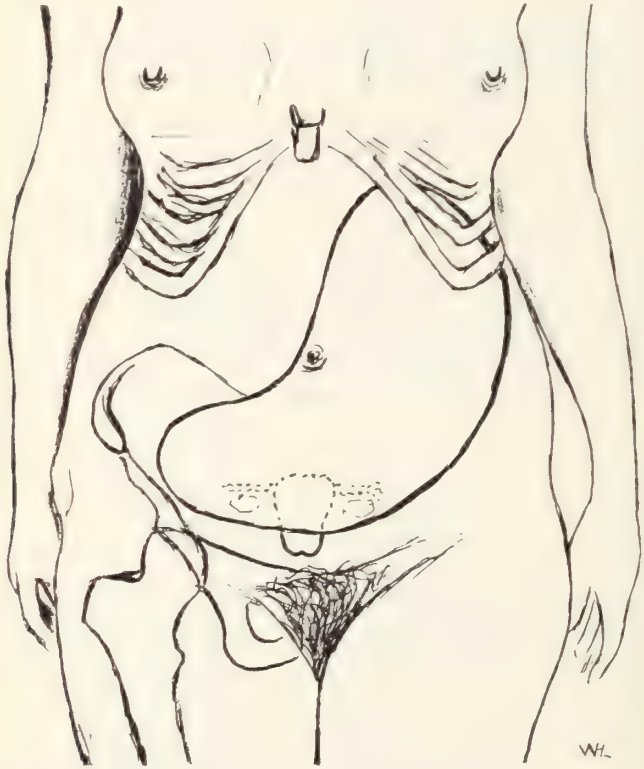


FIG. 1.—Solid sarcoma of right ovary; weight seven pounds. Resembled tumor of spleen. Removal; recovery.

moved through, the vaginal route (enucleation, traction, morcellement), or produced such abdominal, pelvic, and constitutional disturbance as to justify abdominal hysterectomy. The three cases of vaginal hysterectomy for fibroid occurred in the practice of Dr. Brettauer; but I am personally not averse to this operation for fibroids, if the symptoms call for the opera-

tion and the tumors and uterus are not too large to be removed *per vaginam*.

All fluid intrapelvic effusions of blood, pus, or serum which could be easily reached *per vaginam*, did not extend up into the abdominal cavity, and were enclosed in immovably fixed envelopes, were, as a rule, operated on by a free vaginal incision, thorough evacuation and drainage, or iodoform gauze packing. A hard and fast rule cannot, however, be made for these cases, and the operator must be guided by the special features of each case.

I have briefly recorded the most interesting cases.

I. *Solid Sarcoma of Right Ovary; Weight Seven Pounds.*—S. W., aged 21 years, married, no children. Operation January 4, 1899. No adhesions; other ovary and tube normal; uneventful recovery. Has since been confined of healthy child.

II. *Tubular Abortion; Nephrolithiasis with Stone Impacted in Ureter; Double Pyelonephritis; Cholelithiasis; Three Successive Abdominal Sections; Colpo-ureterotomy; Nephrotomy.*—M. K., 40 years of age, four children, the youngest 8 years old, seen January 9, 1899. Since one week severe pain in rectum, chiefly during defecation. Last menstruation four weeks before. Well nourished, but anemic. Behind uterus small, boggy, immovable mass, probably coagulum. Uterus not sounded, as menstruation was just due. Referred back to family physician for observation, as diagnosis was doubtful. Three weeks later examined at her home, under chloroform, and pelvis now felt to be filled with a firm, boggy mass extending above pelvic brim; the diagnosis of pelvic hematocele from probable ruptured ectopic pregnancy was made, and immediate operation advised. The patient was taken to a private room in the hospital, and the abdomen opened on the following day. The diagnosis proved correct; a small arterial twig at the infundibulum tubæ was still bleeding, and the larger coagulum was undoubtedly the result of a steady oozing from that spot (with probable occasional interruptions by coagulation) for at least four weeks. The ovisac was situated in the abdominal end of the right tube, which was greatly distended by a comparatively fresh clot, on loosening which the bleeding arteriole came to view. The tubal wall was not ruptured, as in the ordinary cases of ruptured ectopic. It was therefore an instance of tubal abortion rather than of ruptured tubal pregnancy. The non-interruption of menstruation and the absence of the abdominal pains preceding rupture of the distended tube were

thus explained. But the facts illustrate the uncertainty of diagnosis of extrauterine pregnancy when the typical tubal variety is departed from, and when our chief diagnostic factor in the determination of very early pregnancy, temporary amenorrhea, is absent. The affected tube was ligated and removed, the coagula were evacuated by hand, gauze sponging, and irrigation with sterilized water, and the abdomen was closed without drainage. With the exception of a slight stitch-hole sinus, due to the adiposity, the wound healed by first intention. The patient was progressing satisfactorily, when on the eighth day, on making my daily visit, I was surprised to hear that on the previous evening the rectal temperature had suddenly risen to 102°, and the urine, which had been drawn by the catheter, as the patient seemed unable to exert sufficient abdominal pressure to void it, was turbid and showed abundant pus. The house surgeon attributed the rise in temperature to an acute cystitis produced by catheterization, which explanation I refused to accept. Finding no cause for the fever in the abdomen, I made a vaginal examination, and felt in the left anterior vaginal vault a hard, irregular, immovable mass about one inch long by half an inch wide, which I could take for nothing but a renal calculus impacted in the left ureter close to the bladder. It was not there when I made the last vaginal examination, the day prior to the operation.

The impacted stone did not seem to obstruct the left ureter, since the amount of urine exceeded forty ounces in the twenty-four hours, and there was no sign of a distension of the left kidney. Hence, I did not at once proceed to remove the stone by a vaginal incision, fearing the effect on the patient's *morale* (she was a very timorous, nervous woman) of a second anesthetization and operation so soon after the first, and hoping the stone might complete its passage into the bladder voluntarily. There was quite an amount of pus in the urine, and the free use of Poland water was ordered, to dilute the urine and perhaps help to wash down the stone.

I should state that the family physician had no suspicion of any renal trouble, not having been consulted by the patient for some time previous to her recent visit; and the urinalysis prior to the operation was hasty and incomplete owing to the lack of time between her admission and the operation. A few pus cells were reported, but little attention paid to this in comparison with the more urgent condition. If the old renal disease had been suspected, probably chloroform would have been substituted for ether as the anesthetic. Still, subsequent events show that such minor circumstances would have probably influenced the progress of the case but little, and that even the immediate removal of the impacted ureteral calculus would not have ma-

terially benefited the far-advanced pyelitis and nephritis on that side, not to mention the other kidney.

However, I admit that it would have been better, on general surgical principles, to have removed the stone as soon as discovered, so as to restore free renal drainage, and in another similar case I certainly should do so without regard to the effect on the patient's mind.

The bladder was irrigated several times daily, and for a few days the condition appeared to improve, when suddenly, six days later, or fourteen days after the ectopic operation, the patient complained of severe pain in the right ilio-renal region and the temperature rose to 104°. The adiposity of the abdomen prevented successful palpation of either kidneys or appendical region. It was finally decided, as the symptoms were urgent, to make an explorative incision in the right iliac region, through which both the appendix and the right kidney could be examined. This was at once done and both these organs found healthy, at least so far as the finger could determine; but the

FIG. 2.—Renal stone impacted in left ureter. Front and rear view, showing longitudinal groove which permitted escape of urine. Natural size.

gall bladder was felt greatly distended, and the acute symptoms were readily attributed to this lesion. Hence, the iliac incision was closed and another made over the gall bladder, which was stitched to the peritoneum, and then opened at a point where a greenish-white discoloration with sharp, irregular borders of the size of a dime showed signs of gangrene and impending rupture. A large amount of bile, and 190 gallstones varying in size from a pin's head to a small hazelnut, were evacuated and a rubber drainage tube was inserted. About as many more small stones were discharged during the following week. The temperature gradually fell and for several days the general condition improved. The wounds were doing well. Then the temperature began to rise again, and it was evident that there was still some other hidden trouble, undoubtedly the left kidney with the stone impacted in the ureter. At the husband's request, Dr. A. G. Gerster saw the patient with me a week after the last operation and advised removal of the impacted stone, with which advice I entirely concurred. Without any

difficulty the left ureter was incised through the vagina, the stone seized with bullet forceps, liberated and removed. At once a gush of clear pus, at least several ounces in quantity, followed, and then a copious flow of purulent urine. A No. 8 rubber catheter was passed into the ureter up to the kidney, and free drainage thus established. This was kept up by irrigation several times daily, the number and times of irrigation being influenced by the occasional clogging of the tube, as heralded by a rise of temperature, which occurred a number of times during the remainder of the treatment, and was at once reduced when the drainage was restored. Thus for several days again the patient fluctuated between alternate elevations of temperature up to 103° and almost normal rate, growing steadily weaker, however, as might have been expected, in spite of stimulation and fair assimilation of nourishment. At the end of the fourth week from the ectopic operation the urine voided or drawn from the bladder, therefore from the right kidney, began to show a marked increase in pus, and the rise of temperature failed to yield to irrigation of the left kidney. The condition was evidently becoming desperate; the temperature was 105° and pulse 150, very weak. I had no hope of benefit from any operation or treatment, but yielded to the husband's appeal to do anything which might offer the slightest chance, and I had the patient infused with two quarts of decinormal salt solution in each arm, one after the other, and, after aspiration under ether, rapidly cut down on the right kidney from the lumbar region. The aspirator showed thin, turbid urine, which gushed out in a torrent when the pelvis of the kidney was opened with dressing-forceps. But the renal tissue was so friable that it tore beyond my intention, and the bleeding was so severe that I was obliged to crowd iodoform gauze into the wound to stop it, after a hasty exploration with the finger, which revealed a distended pelvis, but no stone. An attempted nephrotomy on the other side was not completed on account of the condition of the patient, who died four hours later.

She was, in my opinion, practically moribund before this last operation, and, as I have said, it was only at the husband's express desire that I operated. It is more than likely that both kidneys were diseased before the ectopic pregnancy occurred; the left certainly contained a calculus and a suppurating pelvis long before that date, and probably the right was more or less in a similar condition, without a calculus. An autopsy was not asked for, which would have settled this question; because all hands were pretty well agreed that there had been operating enough on the poor woman in life to let her rest after death.

Had the condition of the kidneys been suspected at the time

of the ectopic operation, a left nephrotomy and removal of the calculus would have been indicated and performed at the same time, and quite possibly might have saved the right kidney from fatal disease, and thus have prolonged life for a time. With the information at my disposal, every effort was made to save the patient as each new indication arose, and I do not feel that the ultimate fatal termination was due to any neglect on my part, any more than it was to a failure of the husband to sanction every effort which was made in behalf of his wife.

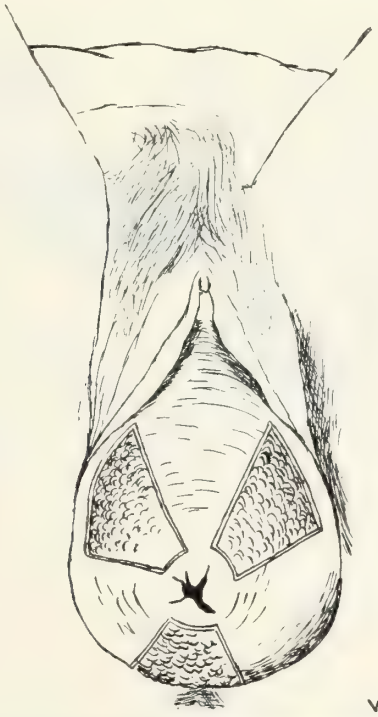


FIG. 3.—Anterior bilateral and posterior denudations for complete prolapsus uteri et vaginæ. The areas of denudation should have been represented broader.

III. *Ventral Fixation for Complete Prolapsus of Uterus and Vagina; Intra-abdominal Shortening of Round Ligaments; Vaginoplasty; Subsequent Labor; Embryotomy; Perforating Laceration of Anterior Uterine Wall at Point of Ventral Fixation; Sepsis; Death.*—L. H., 23 years old, four children, was operated on February 25, 1899, for complete prolapsus uteri et

vaginæ by longitudinal bilateral and posterior colporrhaphy, broad ventral fixation (three silkworm gut sutures, removed), and intra abdominal shortening of round ligaments. Perfect recovery. I am indebted to Dr. Robert L. Dickinson, of Brooklyn, for the subsequent history of the case.

June 24, 1900, Lena H. was admitted to Brooklyn Hospital. She was profoundly septic, pale, pulse 120, temperature 102.4°, abdomen tender and tense. Embryotomy had been performed

FIG. 4.—A, thickened uterine wall; B, ventral fixation (after sketch by Dr. R. L. Dickinson). The rent was to the right of A and B and extended up the whole body of the uterus.

three weeks before for tumor which was said to obstruct delivery. "Thin, depressed scar above pubes, to which uterus is fixed. The uterine globe extends half-way to the navel, although it is three weeks since delivery. Its breadth is nearly that of the inlet. The lochia are very offensive. The cystocele and rectocele present the results of old injuries and not from recent delivery. The cervix gapes widely, torn into the right

broad ligament. As the hand is passed into the uterus, a mass is found on the back of the symphysis and above it, which projects at least half-way across the pelvic cavity. This thickening is broad laterally and reaches up to the top of the external scar. The entire right side of the uterus seems to have given way. The four fingers enter the peritoneal cavity to find solidly matted bowel masses and much exudate all about the injury. The upper and posterior walls of the uterine cavity were relatively thin and relaxed. Cleaning of the cavity, saline transfusion, and free stimulation would not rally the sinking patient. She died in three days. Autopsy refused."

The above occurrence shows a danger following ventral fixation in the parous woman which does not seem to be sufficiently recognized and appreciated by operators who favor this method of retaining the retrodisplaced or prolapsed uterus in approximately its normal position. If this woman had not conceived again, or if she had passed the menopause, my operation would have been a permanent success; indeed, the report seems to indicate that anatomically it fulfilled its object, since the body of the uterus was attached to the anterior abdominal wall and the vagina presented no injury from the recent delivery. But the abdominal attachment prevented uterine contraction and involution, and thus favored septic infection, aside from the dangerous rent in the adherent anterior uterine wall. Serious, even fatal, dystocia has been repeatedly reported after anterior vaginal fixation, which for this reason, and because it substitutes an abnormal immovable anteflexion for a movable retroflexion, I have never approved. But I believe ventral fixation has hitherto been considered fairly free from objection in subsequent labors. This does not, however, seem to be the case.

IV. *Suppurating Intraligamentous Cyst of Right Ovary; Cyst Wall Peeled Away from Universally Adherent Intestine; Extensive Injury to Peritoneal Coat of Intestine too great for Suture; Iodoform Gauze Packing (Mikulicz); Desperate Case; Recovery.*—B. F., 22 years old, married, three children, refused operation until almost moribund. Saline infusion during operation. Case seemed almost hopeless. Wound left entirely open; healed rapidly by granulation. Discharged well on thirty-second day.

V. *Septic Puerperal Endometritis; Hydrogen Peroxide Douches, the latter given daily by family physician until eighth day (by misunderstanding); after last Hydrogen Douche sudden sharp Abdominal Pain and Collapse; Admitted to Hospital Practically Moribund Twenty-four Hours Later; as Last Desperate Resort Abdominal Section; Several Small Abscesses Found in Uterine Wall, one of which had burst into the Abdominal Cavity; General Purulent Peritonitis; Death.*—This case was seen by me in consultation eight days before admission, and ONE 50 per cent. peroxide of hydrogen intrauterine douche recommended. The uterus was then large, flabby, and patulous. The patient's condition improved after this, and the pulse and temperature gradually became nearly normal; but the attending physician, misunderstanding my directions, continued the intrauterine peroxide douches daily until the eighth day, when evidently the gaseous expansion of the hydrogen ruptured the thin, contracted uterine wall at its weakest point, the mural abscess, and the fatal peritonitis was induced.

Whether one of the abscesses in the uterine wall would not have ruptured spontaneously and caused death I cannot tell; but it is quite likely, unless the perforation happened to occur into the uterine cavity. At any rate, the danger of injecting peroxide of hydrogen into a more or less contracted uterine cavity is illustrated by this case, as well as the advisability of always washing out the hydrogen foam as soon as it ceases to bubble.

VI. *Impacted Pedunculated Subperitoneal Fibroid Tumor Causing Intestinal Obstruction, Fecal Vomiting, and General Peritonitis; Abdominal Section; Removal of Tumor; Death.*—C. S., 27 years old, married, no children, was seen by me in consultation with Dr. George Knipe on July 29, 1899. Three days before, while at breakfast, she felt a sudden sharp pain in the lower abdomen and rectum, with a desire to go to stool. There was no result, however; the pain continued and she went to bed. Dr. Knipe was not called until two days later and then found the pelvis filled by a hard, tender tumor which pushed the uterus forward and upward. I saw her next day, and with the history given me was unable to decide whether the case was one of fecal impaction, hematoma (ruptured ectopic pregnancy, although menstruation was normal), or impacted fibroid, which diagnosis was suggested by Dr. Knipe because her mother had a fibroid of the uterus. He had never examined the patient

before. As there were no urgent symptoms, I advised observation and thorough evacuation of the bowels. I confess that I inclined to a pelvic hematoma, although the mass was a trifle too hard for a recent blood clot. Being out of town, I did not see the patient again until two days later, when I was told that she had had fecal vomiting. Under ether Dr. Knipe and I endeavored to dislodge and push up the tumor, both by the vagina and rectum, feeling inclined to believe it to be an impacted fibroid; but our efforts failed. The patient was then at once taken to the hospital and the abdomen opened, Dr. Howard Lilienthal kindly assisting me. A solid, fibrous tumor of the size of a pint measure, with thin twisted pedicle attached near the fundus uteri, was found so tightly wedged into the pelvic cavity that it could only be dislodged by strong traction with the vulsellum. It was edematous and almost black in color. There was general peritonitis, and the small gut was opened and left packed in the wound, and the patient given a saline infusion. She rallied temporarily, but died in about eighteen hours.

I have seen many cases of subperitoneal pedunculated fibroid tumors of the uterus, and removed a number which caused pain or annoyance by their mobility or by at times dropping into Douglas' pouch; but I had never seen such a tumor immovably impacted before. I regret that I did not make the diagnosis when I first saw the case and operate then. But not knowing that the woman had such a tumor, any more than Dr. Knipe did, and there being no urgent symptoms then, I did not feel justified in at once advising an explorative abdominal section. Nor do I know that in another exactly similar case I would be able to act differently. Still, of one thing I feel certain, and that is, that if I again meet with an intra-abdominal pedunculated fibroid of the uterus which is freely movable, even though it produces neither pain nor discomfort, I shall advise its immediate removal, for fear of its becoming impacted in the pelvic cavity or of its pedicle becoming twisted. This woman's life could easily have been saved if it had been possible to make the correct diagnosis when the accident occurred.

VII. *Ruptured Ectopic; Pelvic Hematocele; Vaginal Section; Subsequent Abdominal Tumor; Abdominal Section; Large Encysted Abdominal Hematocele; Recovery.*—D. S., aged 33 years, married, two children, admitted October 13, 1890. Seen

in consultation with Dr. H. W. Berg. Last menstruation nine weeks; spotting for four weeks; one day before, sharp abdominal pains, collapse. Diagnosis: Ruptured ectopic. Pelvic tumor not felt until October 20, 1899. Vaginal section October 21. Subsequent development of large abdominal tumor. November 1: Abdominal section; evacuation of large quantity of blood clots from encysted abdominal hematocele; gauze packing. Discharged well November 28.

VIII. *Impacted Ovarian Cyst with Twisted Pedicle; Apoplexy of Cyst; Abdominal Section; Recovery.*—E. P., aged 22 years, married, one child. Two days before admission sudden severe pain in lower abdomen; collapse. Sent in by Dr. H. W. Berg. Admitted November 2, 1899. Examination under anesthesia. Uterus pushed forward and upward by immovable, tense, elastic tumor in Douglas' pouch. Diagnosis: Impacted ovarian cyst or hematocele (menstruation just over). Abdominal section on same day. Impacted ovarian cyst with twisted pedicle; cyst edematous and containing a large blood coagulum, evidently caused by torsion of pedicle. Discharged cured November 23.

IX. *Tubal Pregnancy on Right Side; Old Ovarian Abscess on Left Side; Celiotomy; Recovery.*—A. W., aged 27, married, one child. Celiotomy November 22, 1899. Discharged well December 14.

X. *Simultaneous Tubal Abortion on one side and Ruptured Hematosalpinx (Ectopic?) on other side; Abdominal Section; Recovery.*—E. S., 26 years old, married, no children. Symptoms of ruptured ectopic pregnancy of right tube. Abdominal section; tubal abortion three and one-half months. Left tube size of an English walnut, contains fluid blood. No sign of embryo, and microscope fails to find chorionic tissue.

Hence the diagnosis of double ectopic is doubtful. Still, what else could have caused the left hematosalpinx, which was evidently much younger than the tubal abortion?

XI. *Hystero-epileptiform Attacks; Dysmenorrhea; Double Hydrosalpinx; Removal of Appendages; Recovery from Attacks.*—M. B., 32 years old, married, no children; had dysmenorrhea with severe hystero-epileptiform attacks affecting the mental responsibility. Private patient. Under anesthesia appendages found enlarged and adherent. Abdominal section, removal of appendages, January 24, 1900. Up to one year later no return of attacks, and perfect health. Amenorrhea.

XII. *Early Rupture of Ectopic Tube (three weeks); Moribund; Two Saline Infusions; Operation Three Hours after Rupture; Abdomen Full of Bright Fluid Blood; Rupture in Right Tube near Uterus; Spurting Artery; Tubal Sac size of Hickory-Nut; Recovery.*—T. B., 21 years old, servant girl, unmarried; last menstruation three weeks; rupture occurred about 6 P.M.

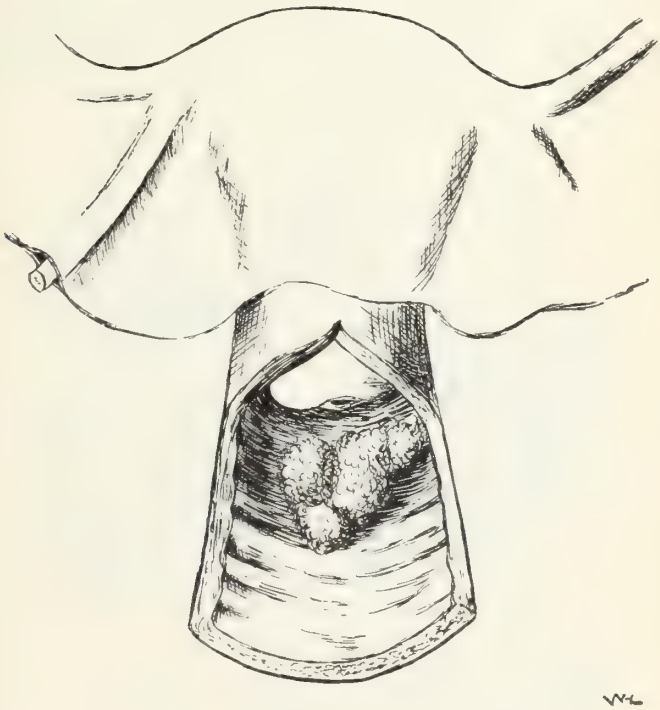


FIG. 5.—Epithelioma of posterior and lateral wall of vagina. The tumor should have been drawn larger.

January 28, 1900. Condition thought to be appendicitis and patient at once taken to hospital. Pulseless at wrist; saline infusion. After second saline infusion, abdominal section by me about 8:30 P.M. Abdomen literally full of bright fluid blood. After ligation and removal of ruptured tube and cleansing of peritoneal cavity, the latter was filled with saline solution and wound closed. Left hospital well on sixteenth day.

XIII. *Toadstool Epithelioma of Cervix; Galvanocautery Wire Amputation of Cervix and then Vaginal Hysterectomy; Two Clamps; No Ligatures; Recovery; Small Red Growth in Cicatrix; Removal by Galvanocautery five months later; Pronounced Benign (Cheloid) by Pathologist; Still Well after Eighteen Months.*—C. C., 23 years old, married, no children. Operation January 6, 1900.

Private case: the youngest woman but one I have seen with carcinoma of uterus (one, a girl of eighteen, with epithelioma of cervix, first amputation with galvanocautery wire by me; recurrence. Then hysterectomy by Dr. Gerster, who had charge

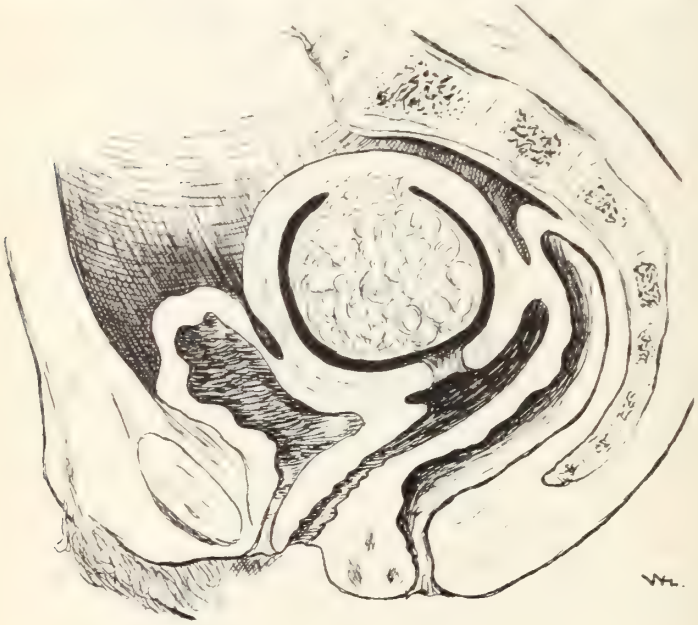


FIG. 6.—Sessile submucous fibroid removed by morcellement.

of my service during my vacation; recurrence; death). The present case is the only one I have seen in which after vaginal hysterectomy for cancer of uterus a recurrence did not take place within a year.

XIV. *Epithelioma of Vaginal Vault; Cervix Healthy; Inoperable.*—T. M., 40 years old, married, three children. Disease involved whole vaginal wall and extended into cellular tissue to

right pelvic wall. Inoperable. Discharged same day, January 13, 1899.

XV. *Large, Sessile, Submucous Fibroid, Broadly Attached to Fundus Uteri; Removed by Morcellement; Recovery.*—H. G., aged 40 years, married, no children. Admitted January 9, 1900. Operation January 10. Discharged well January 27.

XVI. *Very Large Interstitial and Submucous Fibroid; Removed by Morcellement; Recovery.*—A. D., aged 51 years, married, three children. Private case. Operated by morcellement (very difficult) January 31, 1900. Discharged cured February 13.[1]

FIG. 7.—Interstitial fibroid removed by morcellement.

XVII. *Pedunculated Fibrocyst of Uterus in a Girl of Nineteen; Twisted Pedicle; mistaken for Ovarian Cyst; Abdominal Section; Recovery; Appendages not Removed.*—S. B., aged 19 years, single. Fibrocystic tumor sprang from left uterine horn by thick, broad pedicle. Interrupted silk sutures. Cyst size of six months' pregnant uterus. Operation October 16, 1900. Uneventful recovery.

[1] I am indebted to Dr. William H. Luckett, formerly House Surgeon to the hospital, for the drawings from which these illustrations were prepared.

Fibroid tumors, and still more fibrocysts, of the uterus are rare in young girls. This is the only one I have seen in a woman under 20 years of age.

XVIII. *Carcinoma of Both Ovaries: Right Tumor Solid, Left Tumor Mixed, Discharging through Tube into Uterine Cavity; Abdominal Section; Recovery.*—L. B., aged 47, single. Private case; consulted me for a profuse watery discharge from the vagina, which first appeared six months before, this being her only symptom. There was no enlargement of the abdomen. Examination showed a fairly solid tumor in the right half of the pelvic cavity and another smaller one on the left side. On opening the abdomen, October 31, 1900, it was found that the right ovary was represented by a solid tumor of the size of a lemon, and that the large mass on the right side was a cystic tumor springing from the left ovary, with a solid mass at the left uterine horn. The left Fallopian tube was distended to the size of the small intestine and communicated freely with the uterine cavity, into which the fluid of the cyst escaped. The profuse watery discharge complained of was thus explained. It ceased completely after the cyst was removed, and the patient made a fairly good recovery. The tumors were reported by the pathologist to be both highly malignant; but up to seven months later no recurrence had been reported[1] and the general health was good. The smaller tumor (of the right ovary) had been masked by the larger cyst, and was not felt until after the abdomen was opened. The constant drainage of the cyst into the uterus and vagina prevented the tumor from growing so large as to distend the abdomen.

The drainage of an ovarian cyst, benign or malignant, through the tube into the uterine cavity is certainly a very rare occurrence. I have never seen it before. A hydro- or pyosalpinx might possibly drain in that way; although I am rather sceptical as to the occurrence of this occasionally reported phenomenon, since both orifices of the tube are usually occluded in such cases, for without such occlusion the accumulation of serum or pus necessary to dilate the tube would not occur.

[1] June 14: I have just seen the patient and find a hard, immovable, painless tumor, of the size of a fist, on the right side, evidently a recurrence. No further operation is possible. General health excellent, much better than before operation.

XIX. *Papillomatous Cysts of Both Ovaries, One Intraligamentous, in a Girl of Sixteen; Panhysterectomy; Recovery.*—C. S., 16 years old, single. Abdomen enlarging since four months. Celiotomy November 17, 1900. Left intraligamentous ovarian cyst, containing numerous papillomatous proliferations, enucleated. Right ovary size of fist, free, also papillomatous. As it was impossible to cover the denuded peritoneum on posterior surface of uterus and in Douglas' pouch, the uterus was removed at the internal os and the stump covered with peritoneum. Rapid recovery. Out of bed on twelfth day.

While ovarian cysts are not uncommon in young girls (I have removed several from younger girls than this one), a papillomatous degeneration of these cysts at so early an age is unusual, and so is the necessity for a removal of the uterus.

XX. *Double Salpingo-oöphorectomy for Recurrent Carcinoma Mammae; Improvement.*—C. K., aged 38 years, married, was operated on by me January 31, 1900, at the request of Dr. Howard Lilienthal, for recurrent cancer of the left breast, both tubes and ovaries (normal) being removed by abdominal section, with the object of retarding the progress of the mammary disease. Of course this operation was an experiment, but certainly the result warranted it, since the previously sluggish open cancerous wound in the breast scar began to take on healthy action soon after the oöphorectomy and was almost entirely healed when the patient was discharged.

XXII.

THREE CASES OF PRIMARY CARCINOMA OF THE VULVA.

By Joseph Brettauer, M.D.,

ADJUNCT GYNECOLOGIST.

Primary malignant growths of the vulva are of rare occurrence when compared with the frequency of the disease in other parts of the female genital tract. Statistics embracing an enormous clinical material show that the vulva is the seat of the disease in only about 10 per cent. of all cases. In my own experience I had not seen such a case for a number of years until the spring of 1899, when, within a comparatively few weeks, three instances came under my observation. In addition to the rarity of the cancerous growths, each case presents features which are of special interest.

Case I.—D. L., 65 years old. She has had one child forty-two years ago. During her confinement an inguinal hernia appeared on the right side, for which she has since been wearing a truss. Twenty years ago, a large tumor was noticed in the abdomen and was said to be a fibroma. As it never gave the patient any trouble, she has never submitted to any treatment for it. About January, 1898, the patient first came under my observation at the Mount Sinai Dispensary, complaining of severe itching about the vulva. She presented at this time the typical features of kraurosis vulvæ. She refused radical intervention, which was to consist of excision of the diseased area. The usual palliative treatment yielded the usual negative results. Shortly afterwards the patient discontinued her visits, but reappeared at my clinic in April, 1899. In addition to the now pronounced kraurosis, an ulcerating growth was seen on the left labium majus about half an inch from the atrophic clitoris. The growth had sharp edges with an infiltrated base. The ulcer was slightly raised above the surface, was hard to the touch and about the size of a hazelnut. All over the vulva, at the fourchette, around the clitoris, on the labium majus opposite

the ulcer, fissures in the epidermis were noted. The inguinal glands were not enlarged. The chief complaints were severe itching and occasional slight bleeding.

At a meeting of the New York Obstetrical Society held on May 9,[1] I presented the patient, on account of her interesting condition, as a case of "Epithelioma of the Vulva." The majority of the members disagreed with me and were inclined to give a syphilitic character to the growth, although the patient denied all luetic infection. Antisyphilitic treatment was instituted, however, and was vigorously pushed. It was discontinued only when it was evident that its use was of no avail.

The patient was admitted to the Mount Sinai Hospital on June 1, and was operated upon June 3. The operation consisted in the removal of the entire vulva. An incision was made along the border of the vaginal mucous membrane, beginning over the urethra, and was carried around the vaginal outlet. The second line of incision started about an inch above the glans clitoridis, was carried about the base of the normal labium majus, and, with a wide sweep about the infiltrated part of the left labium, was brought back to the starting-point. The tissues thus limited were then excised and their edges united by a catgut suture. The urethra was first fixed to opposite points in the skin. A catheter was left in the bladder for two days. Recovery was uneventful. The patient was discharged on June 15. There was then no sign of pruritus, but there was, it is true, a stenosed vaginal orifice.

The pathologist of the hospital examined the specimen, which showed the ulcer to be a typical epithelioma with marked infiltration of the base. The neoplasm did not extend to the line of excision, however.

Case II.—J. L., 47 years old. She was admitted to the hospital May 11. She had had ten children and two miscarriages. She menstruated regularly until three months ago. Since that time her menses did not appear with the same regularity as before, but there had been a constant bloody discharge for two months previous to admission. A year ago a small wart-like growth had been removed from her vulva by ligature. On examination the region corresponding to the outlet of the right Bartholinian gland was found to be occupied by a growth which extended about one inch into the vagina and came within half an inch of the urethra. It was altogether about the size of a half-dollar. It was movable above the underlying tissues and appeared to be slightly raised above the surface, which was papillomatous in appearance, some parts of the tumor being higher than others. It was very vascular,

[1] Transactions of the New York Obstetrical Society, 1899.

bleeding easily when touched. Its color varied from a bluish black to a dark red. The rest of the vulvar orifice was deeply pigmented, especially about the urethra. The inguinal glands were not enlarged and the pelvis was normal.

On May 17 this growth, after a thorough cauterization with the Paquelin, was excised in the following manner: Two longitudinal incisions were made, one in the median line beginning at the fourchette and extending two inches up the posterior vaginal wall, the other on the anterior vaginal wall a little to the right of the urethra. The two were connected by a semicircular incision in the vagina. This flap was dissected downward to the vulva without touching the diseased area. By an incision along the base of the labium majus, connecting the two starting points, the whole mass was easily ablated. The hemorrhage during the operation was quite profuse, but was easily controlled later. As far as possible, the raw vaginal surfaces were united, and when the tension became too great the skin was loosened about one inch from the edges and employed in covering the remaining part of the wound. A catheter was left in the bladder for forty-eight hours. Recovery was without incident. The patient left the hospital on May 30.

Case III.—A. L., 45 years old, was admitted to the hospital on June 2. She has had five children, no miscarriages. Some years ago she was treated for a catarrh of the uterus. Her menstrual history is normal. Iridectomy for glaucoma was performed three months previous to admission. For two months the patient has had severe radiating pains in the vulva and an irregular bloody discharge independent of menstruation. On examination an ulcerated growth was found on the right side of the vulva in the neighborhood of the Bartholinian gland. It was a hard, circumscribed tumor, not very movable, and measured about one inch in diameter. It was not painful. It bled on being touched. Its edges were slightly raised and its centre was crater-like. On the opposite labium minus was a superficial erosion the size of a pea. In the right inguinal region two enlarged glands could be felt.

The growth was excised on June 3 in a manner similar to the one used in the preceding case. The line of incision was not carried as high up into the vagina, but more of the underlying tissue was removed, the incision being carried down to the periosteum. The defect was closed by suture. The ulcer on the left labium minus was thoroughly cauterized by the Paquelin. An incision was then made along the right Poupart's ligament and as far as possible the glands were removed. The patient was discharged on June 23.

Microscopical examination showed a glandular carcinoma also of the removed glands.

Reviewing these three cases, their individual peculiarities are apparent. The presence of kraurosis in the first case—a disease itself rare and etiologically unexplained—together with the existence of an epithelioma, might justify the thought as to the causal connection of these two lesions, especially as there is a considerable percentage of concurrent epithelioma recorded in the limited number of cases of kraurosis to be found in the literature. As I intend to make this theme the subject of a later investigation, I shall refrain from further consideration of it at present.

The second case appears to have been originally one of papilloma which began to develop more actively after its removal, as is often seen in pigmented subjects. The occurrence of melano-carcinoma at the vulva, in spite of the frequent deposits of pigment there, is unusual.

In the third case the malignancy of the disease is shown by the fact that, despite its short existence as proven by the history, glandular involvement had already taken place to a considerable extent. This circumstance would point to the advisability of removing the inguinal glands, the first station on the lymphatic road, in all cases of malignant vulvar growth—a procedure which I intend to follow in the future.

Considering that in all three cases the incision was necessarily carried into the neighborhood of the urethra, and that in closing the defects it was always necessary to dislocate the orifice, it seems strange that in no instance were any difficulties in micturition experienced. All three patients were repeatedly seen after their discharge from the hospital, and on March 1, 1900, they were all without recurrence as far as the naked eye could detect.

[October 1, 1900: Cases I. and II. have a regional recurrence and also involvement of the inguinal glands on both sides, in a degree which excludes further interference. Case III. is entirely well, no signs of recurrence so far.]

XXIII.

ON TUBERCLE OF THE CHOROID IN CONJUNCTION WITH TUBERCULAR MENINGITIS.

By E. Gruening, M.D.,

OPHTHALMIC AND AURAL SURGEON.

(Illustrated.)

In the twenty years of my connection with Mount Sinai Hospital I frequently had the opportunity of examining cases of tubercular meningitis with the ophthalmoscope. I may have examined fifty cases, some of them a few days, others a few hours before death. Only in two patients did I find what could be diagnosticated as tubercular choroiditis, and in both only one eye was affected. I was fortunate enough to secure one of these eyes, and would corroborate the ophthalmoscopic diagnosis by the anatomical examination. There is a wide disagreement of opinion as regards the frequency of occurrence of tubercular choroiditis in conjunction with tubercular meningitis. Some observers hold that in this affection tubercles but rarely develop in the choroid; and Horner generalizes this view, saying that whenever the pia mater of the brain has become tuberculous the pia mater of the eyes seems to have become immune. Other observers are of the opinion that choroidal tubercle is as commonly found in tubercular meningitis as in general miliary tuberculosis. It has been pointed out by Griffith[1] that the higher estimates occur in the anatomical and not in the ophthalmoscopic observations. My own experience, derived solely from ophthalmoscopic study, agrees with that of other ophthalmoscopists and speaks in favor of the rarity of

[1] "Diseases of the Choroid and Vitreous," System of Diseases of the Eye, Norris and Oliver.

tubercular choroiditis in conjunction with tubercular meningitis. Nevertheless, I am inclined to side with the anatomists, whose methods of examination after death are more searching and more exact than ophthalmoscopic inspection during life. The case which I desire to report was admitted to the medical ward of Dr. Janeway, to whose courtesy I am indebted for the privilege of examining the eyes ophthalmoscopically.

From the case book of the medical ward I copied the following data:

J. C., grocer, 35 years of age, admitted to the hospital February 6, 1888. He had been sick eight weeks. No previous illness. Had cold sensations, sweating, and chills. Went to bed five weeks ago, having pains in the chest. Since childhood he has spat up blood. He complains of general weakness; has lost much weight. Anorexia, dyspnea, burning and dry sensation in throat and mouth.

On admission, fairly nourished. Temperature 100.2°, respiration 28, pulse 112.

February 7: *Physical Examination. Heart.*—Accentuated pulmonic second; systolic at apex not transmitted; heart sounds feeble.

Lungs.—Anterior, sonorous râles; posterior, dulness at both apices, especially at right. Scattered sonorous râles; also sibilant râles, mostly on right side.

Liver.—Negative.

Spleen.—Enlarged.

Urine.—Acid, 1022, albumin trace, no casts.

February 9: Spots of dulness with diminished breathing; crepitant friction râles over lungs.

February 10: Temperature 98.8° to 102.4°.

February 12: Patient somewhat delirious at times.

February 17: Patient delirious. Diagnosis: Tubercular meningitis.

Ophthalmoscopic Examination.—Left eye, media clear. In the vicinity of the disc two pale spots, measuring each about one-third of the diameter of the disc and shading off gradually into the normal choroid.

February 18: Patient worse.

February 19: Delirium. Opisthotonos. Patient died.

The posterior half of the affected eye was removed six hours after death, placed in Müller's fluid, and given for microscopical examination to Dr. J. Weeks, whose report is added.

Microscopical Examination.

BY DR. JOHN E. WEEKS.

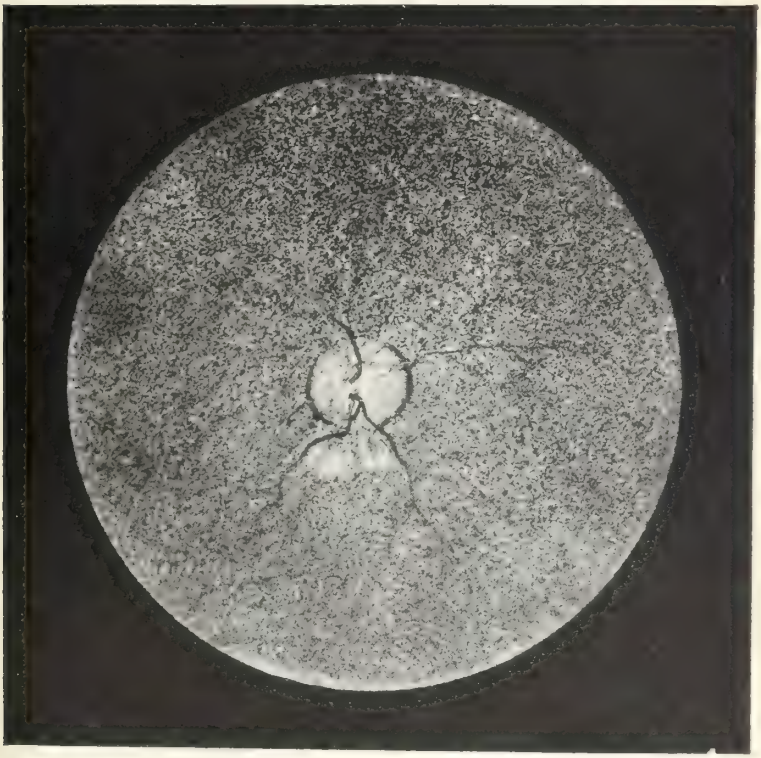
When received the specimen was in Müller's fluid. The bichromate of potash was removed by placing the specimen in alcohol, 10 per cent., and changing the alcohol until no yellow tinge was observed. The specimen was embedded in celloidin and sections were made. Ehrlich's method of staining tubercle bacilli was employed, after having first freed the sections from celloidin by treating with equal parts of alcohol and ether.

The small grayish tumor, which is 1.75 mm. in diameter and is situated 1.25 mm. from the optic disc, is thickest in its centre, where it measures 0.7 mm. It passes gradually from this thickness to that of the normal choroid at its borders. Neither retina nor sclera is adherent to the tumor, but a small, shallow depression exists in the sclera at this point, in which the tumor lies. Viewed with higher powers of the microscope, the mass is found to be made up of cells which vary greatly in size and are grouped together, forming several distinct nodules. In many of the cells, particularly at the periphery of the nodules and at the outer limits of the growth, the nuclei are distinctly marked. In other parts the nuclei are indistinct, and in still other parts the cells have passed into a condition of granular degeneration. The blood vessels of the choroid at this point are either obliterated, which is the case with all small vessels, or their walls are infiltrated with cellular elements and rendered rigid and their lumen lessened. A large open vessel in the centre appears to show hyperplasia of the endothelial cells. The connective tissue of the choroid has almost entirely disappeared; the pigment cells are changed in form, noticeably by a loss of their processes. Some have become disorganized, the pigment granules being found in masses in different places. The chorio-capillaris is obliterated; the division between normal and abnormal choroid is quite sharply defined, the cell infiltration into the choroid extending but a very short distance from the distinctly abnormal tissue. Large, irregular cells containing two or more nuclei are present, but are not numerous.

Tubercle bacilli are met with quite frequently. They are large and well formed, are situated usually in the middle zone between the centre and the periphery of the nodules, and lie apparently between the cells. They are usually isolated. Groups of more than two and three were not observed. The finding of the bacilli positively confirms the diagnosis of tubercle of the choroid.

The second case of tubercle of the choroid in conjunction with

tubercular meningitis came under my observation in 1894. The patient was a young boy in whom the ophthalmoscopic examination was made a few days before death. Here, as in the first case, the tubercles were near the disc and appeared as pale spots



P. H. F.

Tubercle of choroid. (Photograph taken from water color.)

which gradually shaded off into the normal choroid. I am indebted to the skill of Dr. Percy H. Fridenberg for the water color representing the ophthalmoscopic condition.

XXIV.

THE EARLY RECOGNITION OF CHOROIDAL SARCOMA.

By E. Gruening, M.D.,

OPHTHALMIC AND AURAL SURGEON.

(Illustrated.)

The early diagnosis of choroidal sarcoma is not difficult when the growth is situated in the region of the macula and when the deeper vessels belonging to the growth can be seen through the retina. If the sarcoma belong to the pigmented variety, the positive guidance of special vascularity is lacking, and, though the weight of circumstantial evidence may be in favor of the presence of a neoplasm, a reasonable doubt remains and checks our eagerness for radical measures.

I am not aware, and it does not seem to be recorded, that serious mistakes have been made in the first stage of the affection, and that eyes have been erroneously extirpated, at that period, for supposed sarcoma, but examples are numerous that this has been done in the second stage—the stage of increased tension. Now, what is possible at one time may be possible at another; and inasmuch as the diagnosis of the affection in its earliest stage possesses, according to some writers, a peculiar charm, we may be fascinated into prompt but inappropriate action.

The following case recently came under my observation. A diagnosis of melanosarcoma of the choroid at the region of the macula was made and the eyeball removed. The diagnosis was corroborated by the anatomical examination.

Esther G., a married woman 34 years of age, came under my care on June 30, 1899. She never had experienced any trouble in her eyes, but one day in May she noticed, while looking at the ceiling and accidentally closing the right eye, that the sight of the left eye was much impaired. I examined the eyes a few days later and found that the right eye was hypermetropic—I D—and in all other respects sound.

In the left there was an absolute central scotoma and good peripheric vision. The media were clear. In the region of the macula I saw a bluish-gray mass, circular in outline and knob-like in shape. The growth measured at its base about three papillary diameters. The details in the uppermost stratum of the mass could be seen distinctly with a spherical lens, + 12 D., so that there was an approximate elevation of 3 mm. The retinal vessels could be traced over the mass, which appeared opaque and rigid. It lacked the somewhat pellucid and wavy quality so characteristic of simple retinal detachment.

The retina adjoining the base of the growth showed a few small hemorrhagic spots and a large number of discrete and intensely white patches. In view of the painlessness of the affection, the hypermetropic refraction of the eye, the absence

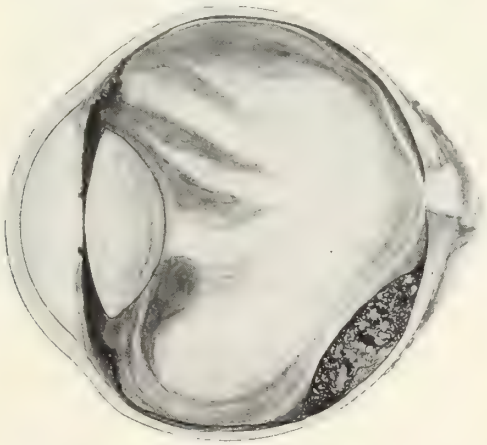


FIG. 1.—Section of eyeball, showing sarcoma of the choroid.

of traumatism, and the characteristic appearance of the mass, I diagnosticated "choroidal sarcoma" and advised removal of the eye. The patient consented, and the operation was performed on the same day, June 30. For the following anatomical examination of the eye I am indebted to Dr. George S. Dixon, and his report as to the condition is herewith appended:

"The globe was in good condition. It measured 23.5 mm. vertically, 24 mm. transversely, and 25 mm. antero-posteriorly. The cornea measured 11 x 11.5 mm. and the lower outer margin was a little hazy.

"Macroscopical horizontal section showed a tumor 3.75 x 12 mm., beginning 2 mm. to the outer side of the centre of optic disc and behind the retina. (See photograph.)

"Microscopical sections show growth to be a spindle cell melanosarcoma within the substance of the choroid. The growth is very compact and pigmentation is unusually dense. Blood vessels are few in number. The choroid in the immediate vicinity of the tumor, but more especially toward the disc, is engorged with blood; on the outer side it gradually becomes less vascular, and at a short distance from the tumor becomes

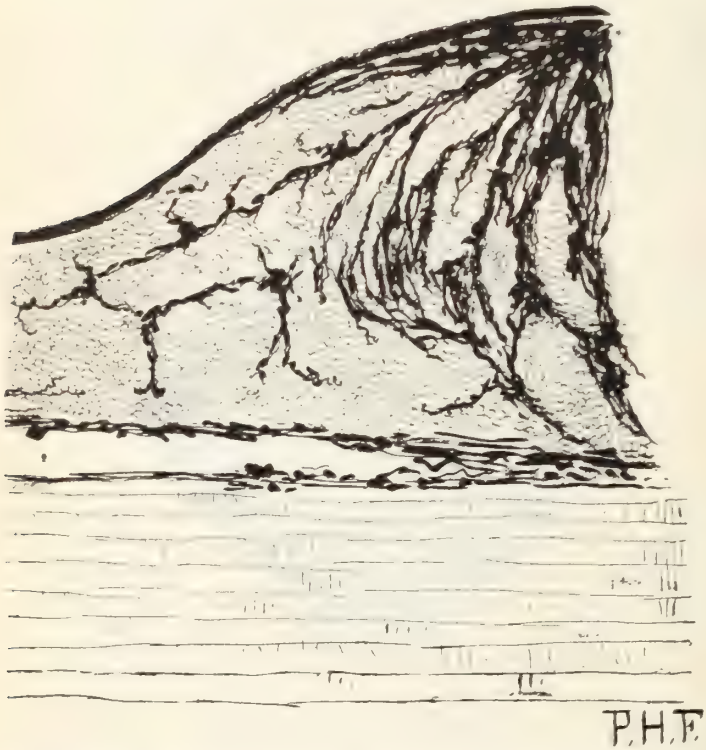


FIG. 2.—Margin of tumor, showing distension of choroidal layers by hemorrhagic exudation. Fascicular arrangement of pigment masses forming a reticulated capsule for the neoplasm. Pigment epithelium forming a continuous covering. Zeiss A 3, Oc. 4.

atrophic. Choroidal atrophy on the opposite side of the disc is more marked.

"The optic nerve is more vascular than usual, but there is no indication of cell infiltration.

"The retina suffered considerably in the vicinity of the growth. The middle layers in front show great edema, almost cystic, and some of the spaces are filled with fibrin, in the

meshes of which are a few small round cells. Between the tumor and the disc some of these spaces contain a hyaloid material with beginning fatty degeneration. The remainder of the retina is in fair condition.

"The ciliary processes and body, zonula, cornea (the hazy portion being in the macroscopical specimen), and canal of Schlemm are normal, except that the ciliary processes are more vascular than usual.

"The lens shows a few small, clear spaces suggestive of cataract later.

"The iris is somewhat swollen about the middle, but there is no cell infiltration.

"The sclerotic is normal except immediately behind the tumor, where invasion by the growth has commenced."

The accompanying photographs were taken from enlarged drawings made by Dr. P. H. Fridenberg.

XXV.

TWO CASES OF OTITIC BRAIN ABSCESS; OPERATION; RECOVERY.

By E. Gruening, M.D.,

ATTENDING OPHTHALMIC AND AURAL SURGEON.

The number of recorded cases of brain abscess terminating in recovery is still small and the publication of two sufficiently well observed cases may prove useful. The brain abscesses here described developed in the course of acute inflammation of the middle ear. Symptoms pointing to the existence of brain abscess were absent at the time of the operation on the mastoid, and the presence of this serious complication was not suspected in either of the cases. In the course of the operation on the mastoid the dura mater overlying the antral roof was found to be discolored, softened, and fistulous. When it became evident that brain abscess existed in the vicinity of the softened dura, the roofs of the osseous meatus, antrum, and tympanum were removed, together with the lower part of the squama. A large area of the under and a narrow strip of the outer surface of the temporal lobe was thus exposed. The abscess was found in the vicinity of the diseased bone and was opened and drained from the under surface of the brain. The cases furnish additional proof of the view that cerebral abscess of otitic origin is found in the immediate neighborhood of the primary bone trouble.

The favorable termination of the cases was probably due to the following factors:

1. The timely recognition of the abscess.
2. The absence of complications.
3. The situation of the abscess, opening on the under surface of the brain.
4. The avoidance of irrigating fluids in the abscess cavity.

CASE I.—W. A., 5 years old.

Previous History.—Three years ago had diphtheria, measles, and scarlatina. No discharge from ears.

Present History.—Fourteen days ago began to complain of slight pain in right ear, which disappeared after a few days. About ten days ago commenced to have fever—temperature 100° to 102.8° (at same time two other members of family had malaria, and it was first thought that boy suffered from it also). Fever very irregular, on some days temperature being normal. Appetite always good. No chill, as far as known. About five or six days ago ear began to stand out from head, and soon after mastoid area was edematous. No great tenderness. Few days ago fluctuation determined.

Status Presens.—Right Ear: Drumhead bulging and red, especially above, *i. e.*, in Schrapnell's membrane; posterior and upper wall of canal swollen. Auricle stands off. Behind it the skin over mastoid is partly covered with ichthyol and collodion. This being removed, distinct fluctuation. Left Ear: Schrapnell's membrane also reddened; vibrating membrane normal.

Pulse 120, temperature 101.5°, respirations 26.

May 3: Operation by Dr. Gruening. Ether anesthesia.

Paracentesis of membrana tympani performed. No pus, but considerable bleeding. Culture taken of blood showed streptococcus longus. External auditory canal then packed, and incision made behind ear from linea temporalis to apex mastoid. As soon as skin and soft parts were cut through, considerable pus, evidently under tension, escaped; culture taken of this pus showed streptococcus longus. Periosteum reflected. Bone externally showed no evidence of perforation or disease. Bone over antrum attacked with gouge and mallet; softened carious bone soon encountered. Entire mastoid process was full of granulation tissue and carious bone. Antrum was cleaned out, and incus, which was loose in cavity and carious, was removed. The roof of the antrum was absent and the dura overlying it was soft and discolored, and at one point showed a fistulous opening. A packing was then placed against the dura and also into the antrum, which had been thoroughly cleaned out. Sinus was then exposed and found normal, though bone all around it was carious. Diseased bone removed, also entire apex; wound packed without any sutures being introduced. At end of operation patient's general condition was good.

Temperature in P.M. 103°, pulse 130, respirations 29; vomited several times.

May 4: In A.M., pulse 120 to 130, temperature 102° to 104.6°, lowest temperature being at noon. About this time slight twitching of left arm noticed, sensorium otherwise good. Pulse

and temperature fell gradually; at 10 P.M., pulse 114, respirations 24, temperature 101.2°. Patient takes moderate nourishment and no longer vomits. Wound dressed under chloroform. No change. Clean iodoform packings introduced and wet dressing applied. General condition of patient quite good.

May 5: Dressed. Wound clean. Some softened tissue removed and culture made of it. Wound sprayed with 1 per cent. carbolic and dressed; iodoform packings washed out in boracic acid and wet dressing applied. General condition of patient good. Piece of supposed brain tissue put into alcohol and sent to pathologist, who reported it to be granulation tissue. Pulse, respiration, and temperature normal.

May 6: Wound treated as above and then dressed dry. Pulsation can be detected at bottom of wound.

May 7: Gradual rise of temperature to 101°. Wound therefore dressed wet. Dura beginning to be covered with granulation tissue.

May 8: Highest temperature 100°. Wound sprayed with carbolic; dressed wet.

May 9: Temperature practically normal; dressed dry; on fluid diet. Fundus of eyes normal.

May 10: Pulse, respiration, and temperature normal at 7 A.M.; rose gradually and at 4 P.M. temperature 103.8°. At 9 P.M., pulse 134, respirations 34, temperature 105°. Patient vomited at 5 and 11 P.M. Patient put back on fluid diet. Free discharge of pus seen for the first time from external auditory canal. Also moderate discharge from wound, which looks very healthy. Canal dried and swabbed with 1 per cent. carbolic; wound sprayed with 1 per cent. carbolic, packed with gauze, and a liberal wet 1 per cent. carbolic dressing applied. This P.M., ¼ grain doses of calomel every fifteen minutes for four doses.

May 11: Several large movements to-day. This A.M., pulse 120, respirations 26, temperature 102.2°; fell gradually till at 9 P.M. pulse 98, respirations 26, temperature 100°. Dressed to-day in same manner as yesterday.

May 12: Temperature has continued to remain down. Dressed. Free discharge from wound; none from ear. Wound filled with healthy granulations. Drain put into ear. Wound packed. Dressed with 1 per cent. carbolic.

May 13: Free discharge from ear. Otherwise condition and treatment same.

May 14: Highest temperature 100°. Drain in ear changed night and morning. Mastoid wound not dressed.

May 16: Until to-day temperature had been normal, pulse 102 to 96, respirations 24. To-day it rose to 101.6°, pulse 114, respirations 26. Child more restless and appetite not so good.

Wound covered with granulation tissue. Free discharge from ear. No sign of retention.

May 17: Temperature rose steadily until at 3 P.M. it was 104°, pulse 122, respirations 26. Child has refused nourishment and become drowsy. Wound exposed, and probe directed into region of tegmen tympani. Liberated about one drachm of thick pus. Child was at once taken to operating room, 5 P.M. Ether administered and operation performed by Dr. Gruening.

Operation.—Granulation tissue was first removed, then wound enlarged anteriorly above ear, so that squamous portion of temporal bone was well exposed. The part of the dura which had been found softened at the previous operation was laid bare and the bone around it removed to a moderate extent. A knife was then passed through the dura at this site and two drachms of thick pus and necrotic brain tissue escaped. The opening was enlarged by dressing forceps and the finger introduced into a cavity about three-fourths of an inch in diameter. This was then packed with iodoform gauze, as was the rest of the wound, and a wet dressing applied. The anterior part of the scalp wound was sutured. The brain abscess cavity was not irrigated. The malleus removed early in the operation. Previous to operation, ophthalmoscopic examination made with negative result. Spread and cultures from abscess pus showed streptococci.

May 18: Slept some during the night. At 2 A.M., temperature 101.9°, pulse 122, rose to 104.2° at 4 P.M. when wound was dressed. There was very little discharge from the wound. Packing in abscess cavity was replaced by Robert Morris' protective drain. Wet dressing of 1 per cent. carbolic. Despite the temperature, child was brighter and moved his head about; took seventeen ounces of nourishment and passed four stools. Phenacetin and caffein, 1½ grains, given at 4 P.M., and at 10:45 P.M. when temperature was 104°. Reduced temperature. Enema of normal salt solution given for stimulation of pulse (120 to 130).

May 19: Slept the greater part of night. At 3 A.M. temperature was 99.6°, pulse 104 (no chill). Temperature remained at 101.9° all day. At 7 P.M. rose to 102.8°, pulse 122. Child is improved, much brighter, appetite good (asked for sausage for dinner). Nutritive enema given t. i. d. and retained. Wound dressed. Moderate discharge. Morris drain acted well. Some infiltration anteriorly under part of incision which was sutured. Packing placed underneath for drain.

May 20: General condition improved. Sleeps well. Appetite improved, is limited to fluid diet. Temperature 100.4°, pulse 96, respiration 24 at 7:50 A.M. At 5 P.M., after dressing, temperature was 103°. Phenacetin and caffein reduced it to

101.8°, pulse 122, respiration 20. Very little discharge from abscess cavity. Edema around eye more marked. Sutures removed. Gauze drain inserted. Irrigated with 1 per cent. carbolic. Wet dressing.

May 21: General condition improved. Edema and infiltration of the face lessened. Lowest temperature 101°, pulse 104, respiration 24. Highest temperature 102.8°, pulse 112, respiration 24. Granulations formed in abscess cavity.

May 22: Improvement gradually progressing. Sleeps most of night. Bright mentally. Edema of face much less. Wound dressed as usual. Very slight discharge of pus from cavity. Highest temperature 101.8° (after dressing), pulse 106, respirations 24.

May 23: Condition about the same. Slight discharge of pus from cavity. Takes fair amount of liquid diet. Bowels moved. Sleeps well. Highest temperature 102°, pulse 120, respirations 24; lowest 100.6°, pulse rate 98.

May 24: Usual condition. Temperature in morning 99.2°, pulse 99, respiration 24. At 8 P.M. suddenly rose to 103.2°, pulse 120, respirations 24. Bowels had not moved all day until at about 7:30, when had a large stool. No change in mental condition.

May 25: Temperature 99.6° A.M. and 102.4° P.M. Pulse 98 to 106. Nux vomica prescribed t. i. d. Some discharge of thick pus from cavity. Edema of face gone.

May 26: In afternoon temperature rose to 103.6°. Phenacetin and caffein given. R. Morris drain left out, and small packing of gauze inserted into abscess cavity, which is almost completely filled. Infiltration about rest of wound almost entirely gone.

May 28: Condition generally seems somewhat improved. On May 27 small collection of pus about the nail of index finger evacuated and wet dressing applied. To-day there was still some pus about nail.

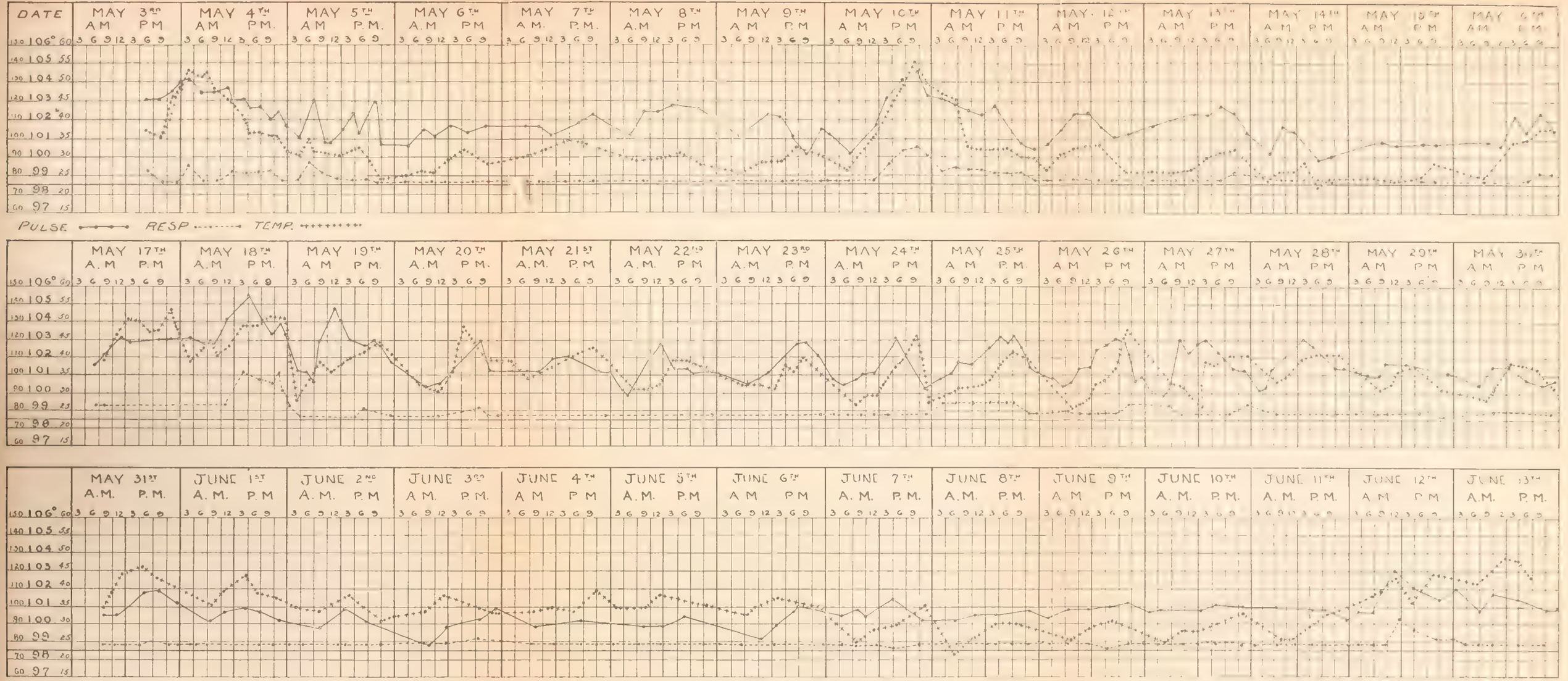
Finger introduced into brain cavity. Some pus and necrotic material came away. It also began to bleed, showing that granulations have formed. Still has afternoon temperature.

May 31: Temperature 99° to 100.6°. General condition good. Very bright mentally. No discharge from cavity, which is much diminished in size. Granulations removed from edge of wound. Sores on back of head. Doing well.

June 5: Patient doing very well. Brain cavity filled. For past two days unexplained discharge from middle ear. Temperature normal.

June 8: General condition much improved. Boy sits up in bed and plays with toys. Wound clean and filling up rapidly. Discharge from ear is lessening. Sores on back of head much

NAME W. R. a. Age 5½ yrs COMMENCEMENT MAY 3d 1899



improved. Sloughs almost entirely freed. Wet dressing applied to them. Temperature 99° to 100°.

June 10: Yesterday granulations at edge of wound scraped. To-day wound looks well. It is fast closing. Discharge from ear very slight. Temperature normal.

June 12: Until to-day temperature has been normal, with exception of some afternoons when it rose to 100° to 100.6°. Child seems perfectly well, but to-day temperature has been between 101.2° and 102.6°, pulse 98 to 120, respirations 24 to 32. Ear examined and nothing abnormal found. No retention, and wound looks healthy. Sores on back of head almost healed. Throat examined, negative. Child does not complain of anything, looks well, has good appetite, and bowels have been freely moved. Sleeps well.

June 13: Temperature 101.4° to 102.4°, pulse 96 to 104, respirations 24. Child does not seem at all sick. To-day a moderate discharge has made its appearance from ear of operated side.

June 20: Since June 13 temperature has never risen above 100.4°, and to-day it is normal. Discharge from ear almost gone, and deep wound behind closing rapidly. Scalp sores healed.

June 22: To-day at 7 P.M. temperature 99°, pulse 104, respirations 24. Child did not feel well during the forenoon. Refused nourishment, complained of headache, and lay in bed instead of going into yard as was his wont. About 11:30 A.M. fell asleep and remained so until about 1:30 P.M., when he awoke, headache gone, much brighter, and almost as well as usual. His breath had at this time a distinct sour odor. Bowels had moved twice yesterday, but so far not to-day. At 1 P.M. temperature 100.4°, pulse 108, respirations 24. Enema given at 3 P.M., but was ineffectual. About 6 P.M. the nurse girl noticed the child appeared dazed when he awoke, and tried to speak to her, but could not, making signs with his hands. He shortly fell into a deep sleep. At 7 P.M. was awake. About 7:15 child's condition changed suddenly and perceptibly for the worse, became unconscious, eyes wide open, pupils dilated, face very pale, voided urine involuntarily. This state lasted for a few minutes and then the face commenced to twitch actively, especially the right side. Then there were some slight consulsive movements of the limbs, the pulse was 112, respiration 40. After this child again dozed off, and at about 8 P.M. was conscious, at first saying only a few words to his father, and then resuming more or less his natural condition, though remaining still somewhat drowsy. About 9 P.M. Dr. Gruening examined the wound, but found nothing abnormal. It was, however, decided that, in the light of the symptoms, aspiration

of the brain to ascertain whether or not there was retention was justifiable.

Aspiration by Dr. Gruening under ether anesthesia.

Wound thoroughly cleansed with alcohol. Aspirating needle then passed into brain a distance of one and one-half inches through old opening. Passed in three directions each time, with negative result.

June 23: About 12 P.M. child recovered from anesthesia, and insisted upon his father sending for nurse girl. Slept a few hours and this morning is perfectly normal mentally, though not looking quite as well as on previous days. At 3 A.M. temperature 100°; at 6:30 A.M., temperature 100°, pulse 108, respirations 24. The remainder of the day it remained temperature 99°, pulse 102, respirations 24.

June 24: Temperature normal, pulse 104, respirations 22. General condition fine. One and one-half grains of calomel had been given on previous day. To-day enema given with very effectual result. Child's every appearance well and healthy. Wound fine and almost completely filled with granulation tissue. External auditory canal has tendency to be closed by granulation tissue.

June 25: Discharged cured.

The chart, registering pulse, temperature, and respiration, is appended.

This case has been published in the Jacobi "Festschrift."

CASE II.—L. T., aged 46 years, born in Russia, housewife. Admitted to the surgical service on May 10, 1900, having been transferred from the medical service.

She was admitted to the hospital ten days previously, suffering with an attack of gallstones. It was observed at the time that there was some facial paresis of the left side. For the past four days patient has been complaining of considerable pain in her right ear, which at once began to discharge, temperature reaching to 101.6°. There has been up to the present time considerable tenderness over antrum and tip regions. Discharge from ear persists. On May 8 paracentesis of right ear was done by Dr. Gruening. Examination shows some bulging of the upper posterior wall of canal. No edema of external tissues. Symptoms persisting, is prepared for operation.

Operation.—Dr. Gruening; ether. Incision made, beginning below and well back of tip of right mastoid and extending obliquely upward, ending in usual site behind auricle. No edema of skin and tissues; periosteum not thickened; pushed back with raspatory and bone exposed. Insertions of muscles over tip transversely cut across and tip exposed. Bone attacked over antrum; cortex very hard and about one-eighth inch thick. Beneath this are many cells filled with granulation tissue and

pus. Cells extend to apex, in which there is a very large cell, also filled with granulation tissue and pus. Antrum opened. Contains granulation tissue, its anterior and upper wall particularly being necrotic. Necrosed tissue removed. The posterior inferior wall of antrum removed, and the sinus exposed at the knee for about one-half inch. It is soft and its walls apparently normal. The position of the sinus is anomalous here, as it is very much farther forward than usual. The probe is passed into the upper wall of antrum and is found to pass without resistance into what seemed a cavity. The necrotic tissue is removed, and dura, softened and covered with granulation tissue, exposed for about one-quarter inch square. Wound irrigated and washed with alcohol. Irrigating fluid does not pass from wound through external ear. Packings of iodoform gauze. Dressed.

May 11: Patient still complaining of trifacial neuralgia on operated side, as before operation. Wound not examined. No other cerebral manifestations. Pulse 88 to 90, respirations 22 to 24, temperature 99° to 101°.

May 12: Wound dressed. Packing removed from dural opening. This is followed by a discharge of pus. Packing to brain cavity replaced. Wound sprayed with 1 per cent. carbolic. Wet iodoform gauze packings and liquor Burrowii dressing. Patient vomited a large quantity of green fluid in the morning. Trifacial neuralgia persists. Pulse 100 to 110, respirations 22 to 24, temperature 101.4° to 102.6°.

May 13: Pain in the cheek and gums on right side persists. No facial paralysis on right side observed. The slight drooping of the cheek muscles on left side is as before. Pupils of equal size and react well. General condition good. Wound dressed, packings changed. Considerable discharge from dural opening. Wound looks fairly well. Iodoform gauze packings. Wet dressing. No vomiting. Pulse 88 to 110, respirations 24, temperature 99.8° to 100.8°.

May 15: General condition good. Trifacial pain is diminished. For the past two days patient is getting tincture aconite, 1 minim, quarter hour. Wound dressed daily. Considerable pus is discharged from dural opening. Wound beginning to granulate. Packing to dural opening. Packings to wound. Wet dressing.

May 17: Wound looks well. Aural opening continues to discharge pus in considerable amounts. The pulsation of the brain can be noticed in the discharge of pus from the opening. Pain in right cheek much less. Decided to enlarge the aural opening.

Operation.—Dr. Gruening; ether. About one-quarter inch of bone was removed from about opening of aura. A probe

passed into the opening for about an inch. This was followed by a discharge of pus. Opening is enlarged with dressing forceps and about three drachms of thin pus and necrotic brain tissue escaped. As much as possible of the pus was allowed to exude and the cavity packed with gauze (iodoform). Wound dressed.

May 18: General condition good. Complains of less pain in the face and gums. Pulse, respiration, and temperature normal. Dressing to abscess cavity in the brain changed. When the packing was withdrawn from brain cavity a thin, bloody discharge followed containing white flakes. Packings to wound. Wet dressing. Mental condition good.

May 20: General condition good. Pain in right cheek and gums continues. Packings removed from abscess cavity. No discharge of pus or blood follows. Cavity apparently clean. Wound looks well. Sprayed with 1 per cent. carbolic. Packings renewed. Wet dressing. Pulse, respiration, and temperature normal.

May 23: Patient is more irritable and complains of headache over back and right side of head. No discharge from abscess cavity. Wound looks well otherwise. Dressed as usual.

May 26: Wound looks well. Very slight discharge from brain cavity. Packed with wet iodoform gauze. Wound sprayed with 1 per cent. carbolic. Wet dressing. Pulse, respiration, and temperature normal. Patient continues to complain of pain in her right cheek, gums, and right side of head. Examination of fundus of eyes negative. For past two days patient has been having considerable epigastric pain and clay-colored stools. No icterus. Pulse, respiration, and temperature normal.

May 28: General condition same. Wound dressed. No discharge of pus from abscess cavity. Wound packed with iodoform gauze. About an hour after dressing, patient had a chill; no rise of temperature. Pulse 96, respirations 24, temperature 98.4°. Vomited, and a partial paresis of left face, left upper and lower extremities, with much diminished sensitiveness to pin-pricks. Deviation of tongue to paralyzed side was noticed. Pulse was rather weak and irregular. Patient very irritable. There was apparently no loss of consciousness. Wound again dressed, packing removed from abscess cavity, followed by a small discharge of pus. Packings to wound and wet dressing.

May 29: General condition somewhat better. Very irritable. Complains of pain in right cheek as before. Paralysis less marked. Sensation improved in extremities. Left side facial paralysis and deviation of tongue as before. Some discharge of pus from abscess opening. Wound looks rather flabby.

Packings to abscess cavity and wound. Wet dressing. Ear irrigated. Pulse 76 to 88, respirations 20 to 24, temperature 98.6° to 99°.

May 30: Paralysis of left extremities has disappeared. Facial persists. Pupils normal and equal. Paralysis of left eyelid improved. Slight discharge from abscess cavity, which is dilated and drained with iodoform gauze. Patient has some epigastric pain. Pulse 76 to 84, respirations 22, temperature 98 to 99.2°.

May 31: Patient vomited once, greenish fluid. General condition much improved. Partial paralysis of left face with deviation of tongue persists as before. Mental condition better. Slight discharge from abscess cavity. Drained as usual.

June 2: General condition improving. Mental condition clear, not irritable. Slight discharge from cavity. Packed and dressed as usual. Slight facial palsy on left side, with deviation of tongue to that side, persists.

June 5: General condition good. Mental condition very good. Cavity in brain smaller, very slight discharge from same. Packing of iodoform gauze. Wound looks more healthy. Wet dressing. Pulse, respiration, and temperature normal.

June 8: General condition continues good. Wound looks well and granulating. Abscess cavity contracting. Slight discharge. Packing and dressing as usual. Pulse, respiration, and temperature normal. Allowed out of bed. Still complains of some epigastric pain. Bowels regular. No vomiting.

June 13: Wound granulating. No discharge from abscess cavity. This is about closed with granulations. No pain in head or face. Slight drooping of facial muscles of left side and deviation of tongue to that side persists. Only slight paresis of muscles of left side of face. Pulse, respiration, and temperature normal.

June 18: General condition very good. Mental condition good. Abscess cavity closed. Otherwise as noted on the 13th.

June 21: Mastoid wound almost completely closed. No headaches. Mental condition good. Slight facial paralysis as before.

Discharged cured.

XXVI.

A SERIES OF MASTOID OPERATIONS.

By Charles H. May, M.D.,

Adjunct Ophthalmic and Aural Surgeon.

The following are the histories of a series of mastoid operations performed during a short service in the spring of 1900, and comprising both ward and private patients. They illustrate well what Schwartze and others have pointed out, that in a great many cases one cannot be certain of the exact findings, even when the indications for opening the mastoid are pronounced.

Chronic Purulent Inflammation of the Middle Ear; Chronic Mastoiditis; Cerebral Abscess (Temporo-Sphenoidal Lobe).

M. B., female, 38 years old. Admitted January 10, 1900.

History.—Two years ago had earache and discharge from left ear. One year ago discharge ceased and she was well until two weeks ago, when there was a return of earache, but no discharge (though there was a perforation of the drum membrane, according to the family physician's statement); no vomiting, chills, fever, polyuria, incontinence of urine or feces. Yesterday became stupid, after screaming and moaning a great deal.

Examination on Admission.—Pulse 60, respirations 20, temperature 99.2°. Patient in semi-comatose condition. There is marked tenderness upon pressure over the left mastoid region, also left external otitis, and chronic purulent inflammation of the middle ear. There is optic neuritis of both sides, more marked on the left side. Pupils are contracted, but react well to light. The patient was prepared for immediate operation.

Operation.—Chloroform anesthesia, changed to ether. The usual incision was made over the mastoid. No change in periosteum, which was incised and pushed back. The bone was chiselled into, but, beyond being very hard, showed no pathological changes. The antrum, situated at a depth of ¾ inch, presented nothing abnormal. The sinus was not exposed. The surrounding bone all appeared normal. The tip of mastoid was exposed and opened, but found normal.

The upper angle of incision over the mastoid was continued upwards about 1½ inches, and the bone laid bare. A piece of bone about 1¼ inches in diameter was removed from the skull with chisel, over the situation of the temporo-sphenoidal lobe. The dura was congested, but otherwise normal. An aspirating needle was inserted in a direction forward and inward at an angle of about 45°, and to a depth of about 1¼ inches. Very foul-smelling pus was withdrawn. The dura and brain were opened in this direction and about a drachm of the same character of pus escaped, making about two drachms in all. The brain tissue surrounding the abscess cavity was necrotic, and portions of it escaped with the pus. Probing lightly showed the cavity to extend inward about two inches. Small portions of the necrotic brain tissue were cut away with scissors, and drainage tube and packing were inserted into the abscess cavity. The scalp wound was closed in part by sutures, the mastoid wound packed with gauze and left open; dressed dry and bandaged.

There was no change whatever in the patient during the operation. After the operation the patient became very restless and a hypodermic injection of morphine was given. Pulse became slow and more irregular. The muscles of left lower extremity were contracted and there was considerable difficulty in straightening. Eyes diverged. Ordered strychnine, 1/30 grain, every three hours (hypodermically). At 2:30 A.M., pulse 80, respirations 36, temperature 102°. Breathing became very stertorous. Eye reflexes absent. Given atropine (hypodermically). Died at 3:45 A.M.

Postmortem Examination (through wound).—Wound enlarged. Abscess cavity found in left temporo-sphenoidal lobe, about size of large walnut, contains some greenish, grumous, foul-smelling pus. Wall lined by purulent fibrin. Abscess is encapsulated by a wall about ⅓ cm. thick. No perforation into ventricle, nor are there any signs of meningitis. (Left half of brain was removed and examined.) Right half of brain was aspirated, but no abscess found. Over the tegmen tympani the dura could easily be removed. On opening the tegmen the attic was found full of light-colored pus and cholesteatomatous masses.

In this case the brain abscess was correctly located and promptly evacuated; but the opportunity for operation came too late. In the absence of complicating cerebral conditions, it is highly probable that the operation, performed at an earlier period, would have been successful in saving the life of the patient.

Chronic Purulent Inflammation of the Middle Ear; Acute Purulent Mastoiditis.

S. K., male, 18 months old. Admitted January 15, 1900.

History.—Four weeks ago swelling, redness, and tenderness appeared over the right mastoid region. Paracentesis of right drum membrane was performed. This was followed by a discharge of pus which continued eight days; during this period the ear was irrigated with solution of boric acid. At the end of the week there was a cessation of discharge. For about two weeks child was very well, having no otorrhea nor tenderness over mastoid. A week ago there appeared again a purulent discharge from ear, accompanied by redness and swelling around the ear and over the mastoid, and extreme tenderness over the latter area. Accompanying these symptoms there was fever. No vomiting or convulsions.

Examination on Admission.—Pulse 154, respirations 30, temperature 101.6°. A very red, edematous, and fluctuating swelling occupies the mastoid and post-auricular regions. There is swelling and edema of the right auricle. The external auditory canal is swollen and reddened. The right membrana tympani presents a perforation and the canal is partly filled with purulent discharge.

Operation.—Chloroform anesthesia. Upon making the usual incision behind and parallel with the attachment of the auricle, there was an escape of a large quantity of pus which had been retained beneath the periosteum. The bone of this region was very soft and necrotic and the mastoid cells were filled with pus. Bone was removed with the sharp spoon and the antrum exposed. All diseased bone having been removed, the upper and lower angles of the incision were closed by silk sutures, the wound packed, and a dry dressing applied.

February 10: The day after operation the temperature was normal and remained so throughout. Uneventful recovery. Very slight discharge from external ear. Wound healed. Discharged cured.

This case proved to be, as was expected from the first, one of ordinary mastoid empyema, in which both operation and after-treatment were simple.

Chronic Purulent Inflammation of the Middle Ear; Subperiosteal Abscess.

H. J., female, 4½ months old. Admitted January 15, 1900.

History.—A purulent discharge from both ears was noticed about four weeks after birth. Ears were treated and discharge ceased temporarily, but reappeared shortly after. Discharge has been profuse, particularly from right ear. Three

days ago began to have tenderness, redness, and swelling over right mastoid area. Since this morning, discharge from right ear has ceased. For past two days discharge from left ear has also ceased.

Examination on Admission.—Pulse 140, respirations 30, temperature 100.2°. Right auricle stands out prominently, and there is diffuse post-auricular swelling, redness, and fluctuation. There is great tenderness over this area. Right ear presents a perforation of membrana tympani and slight purulent discharge. No bulging or swelling of walls of external auditory canal.

Operation.—Chloroform anesthesia. Usual post-auricular incision. Skin and tissues beneath very edematous. After incising these there was an escape of a large quantity of pus. Periosteum thickened. Examination of the bone of mastoid region shows this to be healthy. The muscular attachments at the tip were pushed back, exposing the tip, which was also found to be healthy. The mastoid was not opened. The day following the operation there was facial paralysis of the right side.

January 24: Discharge from external ear continues. Wound has healed completely. Facial paralysis slightly improved.

In the preceding instance the post-auricular abscess was apparently an independent lesion; there was no evidence of any connection with a lesion of the mastoid nor any signs of extension along the posterior wall of the external canal, nor relationship to the purulent process in the middle ear. In an older and more robust individual the indication for the performance of the radical operation or the Stacke-Schwartze procedure would have been evident; but the child's general condition was such that only the urgent indications could be considered. The facial paralysis was due to caries in the middle ear and could not have been caused by the operation. The child was seen several months later; at that time there was but little facial paralysis.

Chronic Purulent Inflammation of the Middle Ear; Caries of the Ossicles; Chronic Mastoiditis.

S. S., female, 4 years old. Admitted January 23.

History.—The disease of right ear dates back thirteen months. At that time it began with pain in right ear, accompanied by fever. This was followed shortly after by a discharge of pus. This discharge has continued to a greater or less degree till about a week before admission, when it dimin-

ished, while pain in the ear and neighboring region increased, and marked tenderness over the mastoid region was complained of.

Examination on Admission.—Right side: Mastoid tenderness only over tip. There is no subjective pain over the mastoid, but the patient complains of a deep-seated pain in the right ear. Stiffness of neck. Enlarged gland just at tip of mastoid and in neck. Some edema around mastoid tip. The walls of the right auditory canal are swollen so that mt. cannot be seen. Discharge from ear purulent, but no odor. Pulse 90, respirations 20, temperature 101.4°. Ordered irrigations of canal and hot-water bag to ear. General condition is good.

January 25: Pulse, respiration, and temperature normal. Prepared for operation.

Operation.—Ether anesthesia. Usual incision over mastoid, about 1½ inches in length. Periosteum exposed and pushed back. This is normal. The bone, to all appearances, is also normal. An opening was made into the bone with chisel. The bone is firm, but more deeply, in the region of the antrum, carious bone was found and removed. The antrum was exposed. The bony posterior wall of the canal was next removed with bone forceps and chisel. The malleus and incus were found carious and were excised. The entire wound was irrigated with solution of boracic acid and then with alcohol. The attachment of the auricle was incised and the flaps thus formed united to the edge of the skin wound. The mastoid wound was then sutured with silk, the lower angle being packed for drainage. Packing was also applied to the depth of cavity, through external canal. Dressed dry and bandaged.

February 14: General condition has been very good since operation. Wound healed by primary union. There is now no discharge from ear. Discharged cured.

This case was one in which the indications for the Stacke operation were pronounced, and in which this procedure effected a cure not only of the mastoiditis, but of the purulent inflammation of the middle ear with its otorrhea as well. The healing process was very rapid, and within three weeks the boy was discharged from the hospital cured and required no further attention. Hearing on this side on date of discharge was $\frac{1}{2}\frac{8}{4}$. There was no tenderness over the antrum, in which situation carious bone was found. On the other hand, the tip of the mastoid, which was exceedingly tender upon pressure before operation, was found perfectly healthy.

Chronic Purulent Inflammation of the Middle Ear; Chronic Mastoiditis; Acute General Miliary Tuberculosis; Tubercular Meningitis.

L. K., male, 6 years old. Admitted February 3, 1900.

History.—Six months ago had pain in right ear accompanied by some fever, followed by a purulent, foul-smelling discharge. Ear has been under treatment (irrigations). Eight days ago began to have severe and constant pain in and about the right ear, also fever and vomiting. These symptoms have persisted and have become more marked. The discharge from ear has persisted. There have been no muscular twitchings or convulsions.

Examination on Admission.—Right ear: Canal normal, filled with purulent, offensive discharge. There is a large perforation in the drum membrane. No tenderness over the region of the mastoid, nor over any part of the cranium. No rigidity of neck. Left ear: Negative. Eyes: Pupils and muscles normal. The fundus of both sides much pigmented and discs are pale and waxy (atypical pigment degeneration of the retina). Pulse 118, respirations 28, temperature 102.8°. Examination of viscera negative. No edema of legs. Reflexes normal. Pulse irregular and intermittent.

February 5: Patient unable to urinate. Given hot-water enema, which was effectual. Ears are irrigated with warm boracic acid solution. Slept all night. Mental condition good and child does not complain of headache or pain. Considerable foul, purulent discharge from right ear. During the evening patient became more restless and vomited. Pulse 90 to 122, respirations 22 to 26, temperature 103°. Perspired profusely.

February 5: General condition less favorable. Marked headache. Patient seems stupid. Discharge from ear continues profuse. During the night the patient became very restless. Pulse weak, irregular, and intermittent. In the morning temperature fell from 101.4° to 97.6° and then rose to 98.8°; examination of blood showed leucocytosis (16,400 white); no plasmodia malariæ.

Operation.—Chloroform anesthesia, then ether. Usual postauricular incision. No edema of skin or deep tissues. Periosteum normal. Bone was exposed and chiselled into. The outer portion was hard and healthy, but in the region of antrum there was considerable granulation tissue, which was removed with the sharp spoon. Posterior wall of the bony auditory canal was removed, exposing the middle ear; malleus and incus absent. No pus was encountered. The incision was extended over the tip of the mastoid, and this portion, though normal, was removed with chisel. Next the sinus was exposed. It appeared healthy. It was opened and bled profusely, then packed.

The bone around sinus was normal. The operation was completed in the usual Stacke-Schwartze manner, the sinus packed through the lower angle of the wound, and the cavity in mastoid through external ear. Dry dressing.

February 6: General condition seems better. Mental condition good. Child does not complain. Reflexes normal. Vomited twice. Temperature at 8 A.M., 97.8°, pulse 112, respirations 26; at 5 P.M., temperature 103°, pulse 120, respirations 24. No chill or convulsions. Profuse sweating. Urine turbid, acid, specific gravity 1030, contains albumin; microscopically, pus and epithelial cells, occasional hyalo-granular and finely granular casts.

February 7: General condition unchanged. No convulsions. Evening rise of temperature to 103.8°. Reflexes unchanged. Mental condition good. Patient has no pain or tenderness anywhere, except at site of wound. Strong percussion of skull elicits no tenderness. No rigidity of muscles of neck. Takes very little nourishment.

February 8: Patient appears emaciated. Tongue moist and slightly coated. Bowels moved by cathartics and enemata. Physical examination elicits nothing abnormal in chest, abdomen, or extremities. No convulsions. Wound dressed—looks well. Packings changed. Slight discharge. Dressed dry.

February 10: Patient takes very little nourishment. Wound dressed. Some of the stitches removed. Mental condition continues clear. Patient complains of occasional pain in region of wound. Tongue moist and slightly coated.

February 12: General condition the same. Mental condition clear. Reflexes normal. Wound dressed. Slight discharge. Continues to have evening rises of temperature (103°). Blood examination and culture negative, except existence of considerable leucocytosis (22,400 white blood cells).

February 15: In morning, mental condition clear, reflexes unchanged. Child somewhat irritable. Wound dressed and found in good condition. At about 5 P.M. child began to cry out, and it was noticed that the right hand was contracted and had athetoid movements; some loss of power in right upper extremity. There is ankle clonus of both sides, particularly marked on right side. Abdominal and cremasteric reflexes present. Knee jerks marked on right side. Spasmodic contractures of groups of muscles of right thigh (spasms not marked). In the evening a lumbar puncture was made between second and third lumbar vertebræ and about 40 c.c. of slightly turbid fluid removed. There was no change in the symptoms after the removal of the fluid. The pupils have been equal throughout the disease and react well to light. No photophobia. There is now marked rigidity of the neck muscles.

February 16: General condition unfavorable. There is dulness of sensation and partial paralysis of right side of face; also partial anesthesia of right conjunctiva and cornea. Pupils are equal and react to light. Abdominal reflex on right side absent. Pin-pricks not promptly perceived in right leg. Ankle clonus and reflexes of lower extremities are still present, but not so marked as yesterday. During night child uttered shrill cries in sleep. Highest temperature 101.4°. Wound dressed.

February 18: In early morning, left hand was contracted, as was the right, and there were here also athetoid movements and twitchings of the muscles of the left upper extremity. After a few moments the hand and arm were in tonic contraction, accompanied by a general tonic contraction with child in opisthotonos. The eyes were rotated upward and to the right; pupils of equal size and moderately dilated. This convulsion lasted about half a minute, and was repeated several times during the day. At the end of these attacks there was marked ankle clonus, particularly of right side, and heightened knee jerks of both sides. Anesthesia as before. Abdominal reflexes absent on right side. Cremasteric reflexes well marked. Plantar reflex present, more marked on left side. Patient has involuntary micturition.

February 19: Condition much worse. Marked stupor. Involuntary twitchings on both sides of body. No pupillary changes. Reflexes are difficult to obtain. Tache cérébrale well marked. There is intermittent rigidity of neck.

February 20: Stupor persists. Occasional contractions of groups of muscles. Reflexes cannot be obtained. There is some pulmonary congestion of both bases. In the evening child developed stertorous breathing. Pulmonary congestion more marked. Rigor became more marked. After a lumbar puncture there was no relief from symptoms. Examination of the puncture fluid showed *tubercle bacilli.*

February 21: Child continued in comatose condition and died early in the morning.

The symptoms which this patient presented upon admission to the hospital were obscure as far as they pointed to his systemic affection. The only positive symptoms were those relating to his ear; hence he was placed in the aural service. The finding of tubercle bacilli in the cerebro-spinal fluid, as well as other "unofficial" postmortem evidences (no autopsy was permitted), rendered the diagnosis of acute general miliary tuberculosis positive. It is, therefore, proper to regard the middle ear and mastoid affections as complications of his general dis-

ease; the surgical treatment of these had no effect, of course, upon the progress of the tubercular affection and its termination.

Subacute Purulent Inflammation of the Middle Ear; Caries of Mastoid.

Miss E. M. D., aged 22 years. Admitted February 14.

History.—This patient was discharged from the hospital on February 10 with the diagnosis of chronic purulent inflammation of the middle ear with subacute mastoiditis. Condition improved. There has been slight but persistent tenderness over the mastoid antrum and a slight elevation of temperature every evening (100°).

Examination on Admission.—Right ear: Large perforation of drum membrane and slight otorrhea. No redness or swelling of walls of auditory canal. Tenderness on deep pressure over mastoid antrum. No edema or redness over mastoid. No headache. No general malaise. Temperature normal A.M., 100° P.M.

Operation, February 15.—Chloroform, then ether anesthesia. An incision about 1½ inches long made in usual post-auricular region. No edema of tissues. Periosteum incised and pushed back. Found in normal condition. The bone appeared healthy. After removing the superficial layers with chisel, the mastoid was found carious, soft, congested, and filled with a considerable mass of granulation tissue and pus. The necrotic and granulation tissue was found to extend for some distance inward to the antrum and middle ear, below to the tip of mastoid, and posteriorly toward the occipital region. The diseased bone was removed with bone forceps and sharp spoon until healthy walls were encountered, leaving a cavity about one inch in diameter and ¾ inch in depth. The removal of diseased bone exposed the lateral sinus surrounded by necrosed tissue, which was scraped away. The wound was irrigated and packed. The upper angle of wound was closed with sutures, the lower angle left open.

March 5: Patient made an uneventful recovery. There is still, however, slight discharge from ear. Wound much contracted.

April 1: The wound has closed entirely. There is no discharge from the middle ear and the perforation of the drum membrane has closed. Hearing $\frac{20}{24}$.

This case proved extremely interesting in illustrating what great destruction of tissues may exist with but slight symptoms, even in an example of mastoid disease of short duration. This

patient was first seen by the writer, at her home, during the latter part of December, 1899. At that time she had had grippe, and following this an acute suppurative inflammation of the middle ear with spontaneous perforation of the drum membrane. After a few days of pain, headache, moderate rise of temperature, and general malaise, these symptoms subsided and the patient was apparently recovering, when there occurred some swelling, redness, and tenderness over the mastoid (acute mastoiditis). The writer was prepared to open the mastoid early in January, 1900; but during the morning of the day set for the operation there was a sudden improvement: the discharge from the middle ear became profuse, the temperature became normal, there was marked diminution of redness, swelling, and tenderness over the mastoid, and in every way there was less indication for operative intervention. Accordingly the operation was postponed. During the next few weeks there seemed to be steady improvement, and the patient was up and about with no other symptoms but otorrhea and a very slight tenderness over the mastoid antrum, which was frequently absent. Early in February the mastoid tenderness, though slight, was still persistent, the patient complained of headache, and there were slight rises of temperature (100° in the evening). The perforation in the drum membrane seeming insufficient, this was enlarged (under nitrous oxide) and a small teat of mucous membrane which projected through the opening was cauterized so as to remove the obstruction. But these procedures failed to cause any material improvement. Finally on February 15 the mastoid was opened, with the results given above.

Chronic Purulent Inflammation of the Middle Ear; Chronic Condensing Mastoiditis; Caries of the Posterior Wall of the Auditory Canal.

Miss C. O., aged 28 years. Admitted February 19, 1900.

History.—Two years ago patient was operated on by the writer for mastoid disease on the same (right) side. At that time she had chronic purulent inflammation of the middle ear, with pain and tenderness over the mastoid. The mastoid was exposed and opened. There was marked eburnation, but no other change in the bone. The pain and tenderness over the mastoid disappeared, but the purulent inflammation of the

middle ear has persisted, with rather foul-smelling discharge. Since one week she complains of frequent, very severe shooting pains over the site of mastoid scar, and there is considerable tenderness over this area. The patient is of a very neurotic temperament. The right auditory canal appears normal. The membrana tympani presents a large perforation through which there is an escape of offensive pus. Just in front of this perforation, at the junction of the drum membrane and canal, there are minute granulations. Pulse, respiration, and temperature normal.

Operation February 22. Ether anesthesia. Incision made just in front of old scar, behind auricle. Tissues perfectly normal. Periosteum also normal; this was pushed back and bone attacked with gouge and chisel. The bone was eburnated and very hard, so that it was removed with difficulty. The region of the antrum was opened, but there was an absence of all cells and no space corresponding to the antrum could be found. The region of the sinus and that of the tip was explored; the bone was found hard, but otherwise normal. An emissary to the lateral sinus was accidentally opened and bled profusely. Twitchings of the right side of the face were thought to be observed during the operation, but there was no subsequent paralysis. The posterior wall of the auditory canal was found carious and was removed, so that a large cavity comprising mastoid opening and middle ear resulted. The wound was packed both from the mastoid and the auditory canal.

March 18: The patient made an uneventful recovery. The wound healed rapidly and there was no further pain. The otorrhea has diminished and the discharge is free from odor.

April 1: Completely cured. There is no discharge from the middle ear. The cavity in the mastoid is lined with epithelium continued from the auditory canal. A small post-auricular opening has also remained.

This patient was an example of the so-called "nervous" mastoiditis. It is a question whether her severe pain was due to the sclerosing process or to the caries of the posterior wall of the auditory canal; the latter was exceedingly limited. However, the removal of bone from the mastoid and the posterior auditory canal gave complete relief from the pain, as it had two years previously; and the second operation also cured the purulent inflammation of the middle ear.

Acute Suppurative Mastoiditis (Double).

H. T., male, aged 4 years. Admitted March 11, 1900.

History.—Four weeks previously the patient had diphtheria, and developed otitis media purulenta on right side, with acute mastoiditis. Though his general condition was precarious, the indication for opening the mastoid was urgent. He was operated upon by the writer and an immense quantity of pus and carious bone removed. He made a good recovery. A week ago he developed acute inflammation of the middle ear and acute mastoiditis on the left side. On admission, pulse 144, respirations 32, temperature 101.4°.

Operation March 12. Ether anesthesia. The usual incision was made behind the left auricle, over the mastoid, the periosteum incised and separated. The bone was apparently normal, but after the chisel had removed the outer layers the entire mastoid process was found to be carious and its cells filled with pus and granulation tissue. The diseased area involved the entire mastoid, including the tip. All the diseased bone was removed with bone forceps and sharp spoon and the antrum well exposed. Free communication with the middle ear. The sinus was not exposed. The wound was packed with gauze. No sutures.

March 25: A complicating severe enterocolitis gave rise to temperatures of 103° for several days. With this exception, the progress was favorable and temperature normal. There is considerable discharge from the mastoid opening and also from the middle ear.

April 15: There is no discharge from the middle ear on the right side, and but little on the left. On both sides the mastoid wound is filling up very slowly.

The first operation was performed on the right side at the home of the patient. At the time of the operation he had considerable diphtheritic membrane in the throat and nose, and his condition was serious. The indications for operation were urgent and it was performed as soon as possible—at midnight. This operation was remarkable for the immense amount of diseased and broken-down bone which had to be removed. There was no diphtheritic infection of the mastoid wound, and rapid improvement set in soon after the operation. In the second operation also (left ear) the amount of destruction was great, and beyond what the external evidences of disease previous to operation indicated.

XXVII.

EYE AND EAR SERVICE.

By Carl Koller, M.D.,

ADJUNCT OPHTHALMIC AND AURAL SURGEON.

Diseases of the Eye.	Operation.			No operation.			No treatment.			Unimproved.			Improved			Cured.			Died.			Total.
	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	
Acute edema of the lids				1												1						1
Idiopathic ptosis	1															1						1
Entropion and distichiasis	2	2														2	2					4
Chalazion			1															1				1
Dacryocystitis		1															1					1
Lachrymal stricture	1															1						1
Conjunctivitis, chronic			1															1				1
Trachoma		1	10														1	10				11
Pterygium cicatricium			1															1				1
Pterygium and symblepharon		1															1					1
Burns of conjunctiva and cornea				1												1						1
Corneal opacities						1									1							1
Corneal ulcer, malarial				1													1					1
Perforating wound of cornea	1															1						1
Convergent strabismus			1															1				1
Occlusion of pupil		1															1					1
Cataract, senile	1	2														1	2					3
" complicated		3												3								3
" zonular	1															1						1

Diseases of the Eye—*Continued.*																									
Glaucoma, acute	1	1															1	1							2
" subacute	1	2															1	2							3
" chronic	3	2											3	2											5
Total	12	16	14	2	1	1							3	5	1	11	12	14							46
Diseases of the Ear.																									
Myringitis bullosa			1															1							1
Otitis media purulenta, acute				1												1									1
" " " chronic					1	1								1				1							2
Mastoiditis, acute			4															4							4
" subacute			1															1							1
" chronic with sclerosis		1															1								1
" " " fistula	1		1										1					1							2
Caries and necrosis of mastoid	1															1									1
Mastoiditis, secondary			1															1							1
Mastoid wound				1						1															1
Phlegmon over mastoid region			1															1							1
Cervical adenitis					1									1											1
Total	2	1	9	2	2	1				1			1	2		2	1	10							17
Diseases of the Ear with Intracranial Complications.																									
Mastoiditis, subacute, with purulent leptomeningitis, acute		1																				1			
" chronic, " " " "			1																				1		
Mastoiditis, chronic, with thrombosis of sigmoid sinus and brain abscess in temporo-sphenoidal lobe			1																				1		
Total		1	2																			1	2		3

Diseases of the Nose and Throat.	Operation.			No operation.			No treatment.			Unimproved.			Improved.			Cured			Died.			Total.
	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	M	W	C	
Empyema of Highmore's antrum	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Fracture of nasal bone	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Adenoid vegetations of naso-pharynx	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Hypertrophy of tonsils and adenoid vegetations	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Total	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	1	..	3	..	..	..	4

OPERATIONS.

On the Eye.

	No. of Operations.
Chalazion incised and curetted	1
Electrolysis for distichiasis	4
Expression for trachoma	11
For entropion, Hotz's operation	1
For ptosis, advancement of levator palpebræ superioris	1
For lachrymal stricture	2
For pterygium, excision	1
For pseudo-pterygium	1
Advancement of external muscle for convergent squint	1
Iridectomy preparatory to extraction of cataract	4
Iridectomy for glaucoma	11
Iridectomy for occlusion of pupil	2
Sclerotomy for absolute glaucoma	1
Cataract Operations:	
Congenital, needling	2
" linear extraction	4
Senile, extraction of	
" simple	2
" with iridectomy	2
Complicated, extraction of	2
Total	53

On the Ear.

Paracentesis of membrana tympani	1
For mastoiditis, acute	4
For mastoiditis, subacute, abscess	1
For mastoiditis, chronic	2
For mastoiditis, chronic, secondary operation	2
For caries and necrosis of mastoid	1
For mastoiditis, chronic, and acute purulent leptomeningitis	1
For mastoiditis, subacute, and acute purulent leptomeningitis	1
For mastoiditis and thrombosis of sigmoid sinus, ligation of jugular vein	1
For brain abscess, secondary operation	1
For phlegmon over mastoid region	1
Plastic, secondary to mastoid operation	1
Total	17

On the Nose and Throat.

For hypertrophy of tonsils and adenoids	1
For adenoids	2
For empyema of Highmore's antrum	1
	4
Total operations	74

XXVIII.

A CASE OF THROMBOPHLEBITIS OF THE LEFT SIGMOID SINUS MASKING A LATENT BRAIN ABSCESS IN THE LEFT TEMPORO-SPHENOIDAL LOBE, BOTH ARISING FROM CHRONIC OTITIS MEDIA.

By Carl Koller, M.D.,

ADJUNCT SURGEON, EYE AND EAR DEPARTMENT.

F. S., aged 8 years, was admitted to the Ear Department of Mount Sinai Hospital on August 21, suffering from what was apparently infective thrombosis of the sigmoid sinus of aural origin.

History.—As to the previous history, the statements of the parents were conflicting. According to one of them, the child had a running ear in early childhood, with repeated recurrences of the discharge. According to the other, the trouble dated back only six months, when the left ear began discharging, unaccompanied by pain. No medical advice was sought. The ear was syringed with warm water and within a week the discharge stopped. Since then the child has been well until five days ago, when the present illness set in with pain in the (left) ear and with some fever. No chills. During this time the child vomited twice. Gradually the pain increased in severity. No discharge from the ear. The fever became higher. Had a chill last night. This afternoon (August 21) the child was brought to the Mount Sinai Dispensary (service of Dr. Meierhof), where a paracentesis of the drum was performed, without, however, evacuating any pus. While at the dispensary she had a chill, 3 P.M., and another at 6 P.M. at the hospital, where she meanwhile had been transferred. This second chill lasted ten minutes. Temperature 105.8°. During the same time she had twitching of lower extremities, especially the right leg.

Condition on Admission.—Well-nourished, intelligent child. Fully conscious. Complains of pain in the left half of the head, especially occipital region and neck. The mastoid of normal appearance. The fossa mastoidea and tip moderately sensitive to pressure, whereas the region behind the mastoid towards neck and occiput is extremely sensitive and also slightly edematous. Below the angle of the maxilla few swollen glands

can be felt in the depth. The region along the upper part of the jugular is sensitive to pressure, but no cord-like swelling can be distinguished. None of the other symptoms frequently found in thrombosis of the sinus are present. The drum of the right ear presents a normal appearance. In the left ear a paracentesis had been performed in the dispensary. Accordingly the drumhead is dull, not tense, and very little congested, excepting the membrana flaccida, which is considerably congested.

The ophthalmoscopic examination reveals the picture of beginning neuritis. Discs intensely red, woolly, veins congested and tortuous.

Diagnosis.—Thrombophlebitis of sigmoid sinus.

Operation August 21, 9 P.M.—As the first step the internal jugular was ligated, following the advice of some authors to have the ligature precede the handling and curetting of the thrombosed sinus, through which proceeding particles of infected matter are apt to be disseminated into the general circulation.

In this preliminary step Dr. A. A. Berg was kind enough to lend me his assistance. Incision along the anterior border of the sterno-cleido-mastoid muscle in its lower half, preparation into the depth, double ligature of the vein one inch above the root of the neck, severed between ligatures. The vein was well filled with blood, apparently not thrombosed. Thereupon opening of the mastoid antrum in the usual manner. The surface of the bone was found of normal appearance and porous. A few cells contained a small amount of pus and granulations. Antrum ¾ inch deep, contained inspissated pus and granulations, which were removed. Then the sinus was freely exposed. A small part of the bone between the latter and the antrum was found dark green discolored. No pus nor granulations upon the sinus (which speaks for a recent origin of the affection); its outer wall, greenish-white discolored, offers to the finger more than the usual resistance. The aspirating needle introduced and withdrew chocolate-colored, disintegrated pus of very offensive odor. Now the skin incision over the mastoid and the one on the lower part of the neck were united. The jugular vein was followed upwards and dissected up to the digastric muscle, at which level it was ligated. This piece of jugular was excised and measured two inches. The sinus was incised lengthwise and a grayish-brown, disintegrated thrombus removed, curetted up and down without restoring circulation. More bone removed to expose the beginning of the lateral sinus and the horizontal part of the sigmoid as near as possible to the bulb of the jugular. When curetting into the lateral sinus bleeding followed, showing that circulation had been restored; this was controlled in the usual man-

ner by packing with gauze. Curetting down towards the bulb disclosed some more disintegrated thrombus and finally some bleeding. The stump of the jugular, when incised, bled also, thus showing that some of the tributary sinuses were not occluded (inferior petrosal, condyloid vein). It was therefore considered more prudent not to attempt the intended syringing through the lower part of the sinus and the stump of the jugular vein. The wound in the neck was sutured, leaving a drain in the lower angle. The upper end of the mastoid incision was also sutured. The rest of the wound packed with iodoform gauze and dressing applied.

Subsequent Course.—The next morning after the operation, August 22, patient looked well and was bright. Temperature at 8 A.M. 99.2°. During the day a slight ptosis and more pronounced puffiness of the region of the left brow and eyelid appeared, which increased during the day and spread also to the right side. In the next day this edema (evidently due to ligature of the facial vein) gradually disappeared. It was also noticed that she was hoarse, or rather that her voice had a metallic sound. No laryngoscopic examination was made; but on inspection of the pharynx the left tonsil was found swollen and the veins of the pharynx engorged. This hoarseness, which disappeared the following day, returned later again and was noticed more or less during the whole duration of her illness. The evening of the same day the patient had a chill lasting ten minutes and temperature to 105.2°. It was assumed that some part of the disintegrated thrombus had remained in the lower part of the sinus and that particles of it came into the circulation through collaterals (inferior petrosal sinus and condyloid veins), an assumption which was made very probable through the conditions revealed at the autopsy. Accordingly the attempt was made to remove this thrombus by carefully syringing upward through the stump of the jugular. However, it was not successful at first, and two more chills were registered on the third and fourth days; they were of shorter duration (eight and three minutes), and the temperature little over 104°.

The attempt at removing the thrombus by careful irrigation was continued and was successful on the third day after operation, when a soft thrombus was washed out from the lower part of the sinus by a current entering the stump of the jugular. This rinsing was repeated at subsequent dressings, with the result that, after a slight chill on the fourth day after the operation, no more chills were registered. It should not be omitted to state that about that time inunctions with Credé ointment (on the limbs ca 20 grains) were begun and regularly continued for some time.

The condition of the patient was fairly satisfactory. She was fully conscious, sometimes very bright and cheerful, sometimes morose and sullen, but not more than an unruly child would be under conditions of a severe and painful illness. Her sleep was good and her appetite was fair.

The temperature continued to show a septic character, but kept in moderate bounds, mostly between 100° and 102°, although it went occasionally down to 99° and reached sometimes 103°.

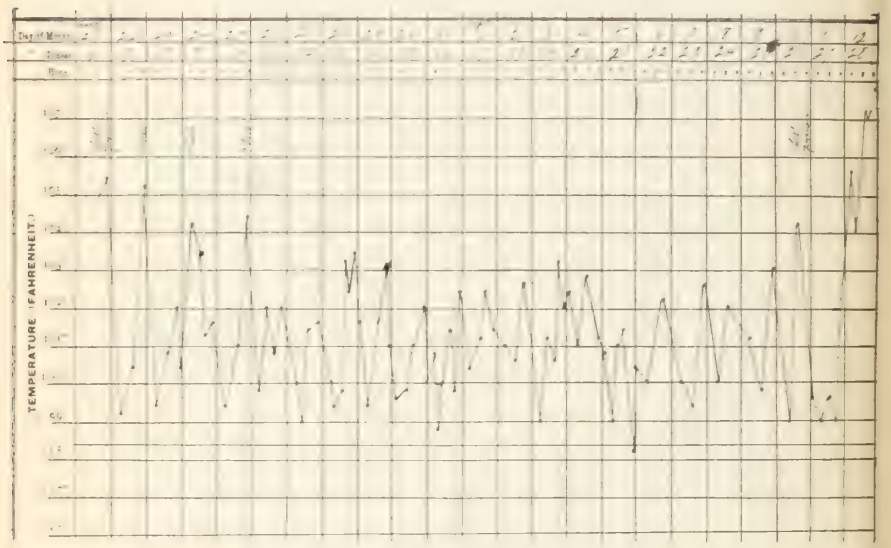
The wound on the neck had closed by primary intention. A deep abscess in the upper part of the posterior triangle of the neck was incised and drained. This abscess was evidently due to a continuation of the thrombophlebitis into the deep posterior cervical plexus through the condylar veins.

In the wound the exposed dura, which looked sloughy in the beginning and secreted offensive pus, became clean under treatment with concentrated carbolic acid followed by alcohol, so that, about the tenth day after the operation, the whole wound over the mastoid showed a healthy granulating appearance. To this, however, was an exception. The tampons introduced into the antrum and also in the auditory canal were always malodorous, the pus having the odor characteristic of caries. However, the exploration and eradication of this focus was postponed to a time when the patient would have sufficiently recovered from the severe operation she had undergone.

There was one ominous symptom, however, which made its appearance first on the sixth day after the operation (twelfth day of illness), when the pulse was noted to be irregular. Most of the time it was regular and in proportion to the temperature and corresponding to the age of the patient, but sometimes when taken during sleep it was considerably too slow—for instance, 84 with 102.2° temperature (on August 28, seventh day after operation, thirteenth day of illness), or 88 with 103° temperature on August 29. Once it went down to 62 with 99.6° temperature on August 30. However, this retardation never lasted long and seemed to be of entirely passing character, but the irregularity of the pulse is frequently and conspicuously noted on the bed slip. With the exception of this occasional condition of the pulse, the patient seemed to be doing well and appeared to be progressing toward recovery.

Towards the second half of the third week after the first operation, the general condition of the patient seemed less satisfactory. She was morose and sullen, although her mind was always clear and her answers were quick and intelligent. She was restless, did not sleep so well, complained frequently of intense pain in her ear and the whole left side of her head, and would purposely derange the dressing as in an attempt

to relieve herself. The color of her face became more sallow and she was somewhat emaciated. Under these circumstances, the exploration of the carious focus in the neighborhood of the antrum, which had been deferred, was undertaken (September 10) on the twenty-sixth day of illness, twentieth day after operation. The new granulations filling the antrum were removed with curette and so was some of the soft bone in the neighborhood. When the roof of the antrum was explored with a probe, the latter entered without any resistance through a small opening in the bone and in the dura into a big cavity extending upwards and forwards, situated evidently in the temporo-sphenoidal lobe. Thus the existence of an abscess in



the temporo-sphenoidal lobe, which had not given any symptoms, was established. The same day the condition of the patient had further changed for the worse. She had a slight chill and vomited several times; became somnolent, was sometimes delirious, and passed her stools involuntarily. Patient had to be catheterized on account of retention of urine. All these symptoms showed clearly that the meninges had become more extensively involved, either directly through extension of the encephalitis, or, what seemed more likely and was subsequently made almost certain at the autopsy, through oozing or perforation of the abscess into the ventricle.

Operation for Abscess.—In the evening of the 10th of Sep-

tember (twentieth day after first operation, twenty-sixth day of illness) the patient was chloroformed. The posterior wall of the auditory canal was removed by means of chisel and electric drill. The median fossa opened over the tympanum and the dura exposed to the extent of three-quarters of an inch square. In the dura, at the site of the tegmen tympani (which had been removed), a small round opening about one-sixteenth inch in diameter was exposed. The dura did not show any signs of recent inflammation. The fistulous opening was enlarged, a thin, greenish pus evacuated, the abscess cavity carefully rinsed with saline solution, and a drainage tube introduced. Dressing applied.

The next morning patient seemed somewhat relieved. Temperature 99°, pulse 100, respirations 28. She was delirious in the morning, but became clear in the afternoon, recognized mother and nurse, and asked for a drink. The eye muscles were not paralyzed. Reflexes on the left leg increased. Towards the evening the temperature rose again. She had a very bad night; was delirious and very noisy in spite of narcotics. In the morning she presented an entirely changed appearance. She lay in stupor with the eyes wide open, divergent and rolling, the pupils dilated, head bent backwards, face swollen and of livid color, respirations very frequent and labored, frequently uttering inarticulate sounds. The pulse became more frequent and weak (rose from 150 to 190), the respirations more frequent and shallow (32 to 54). The temperature kept rising until at 7 o'clock P.M. it had reached 107.2°. At 8:40 patient ceased breathing, on the twenty-eighth day of her illness and the twenty-second day of her admission to the hospital.

Bacteriological Report by E. Libman, Assistant Pathologist.—August 21: Culture from *external auditory meatus*. Bacillus mycoides (contamination).

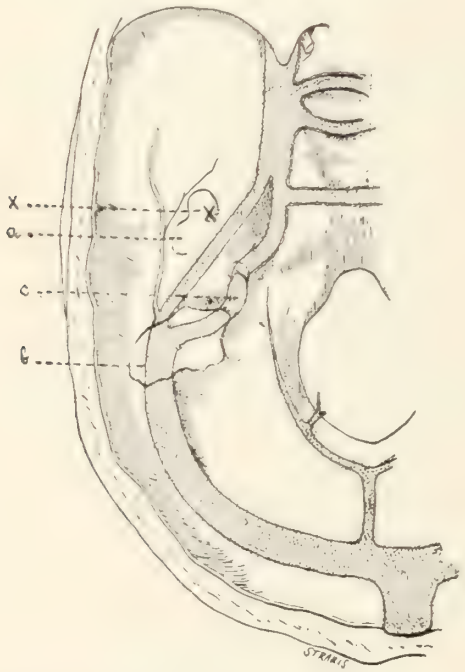
August 21: Pus from *mastoid*. *Spreads* show streptococci and short bacilli decolorized by the Gram procedure (proteus?). *Cultures* show streptococci only. A spread from the *thrombosed sinus* shows the same as the spreads from the mastoid.

August 21: *A culture of the blood* in the excised part of the jugular vein was made. Three cubic centimetres of blood were used, in three tubes. The cultures remained sterile after being observed seven days.

August 26: *A culture from the blood* was made, using 5 c.c. aspirated from a vein of the left arm. Four agar tubes were used. All remained sterile. Time of observation, nine days.

Autopsy Report.—Case of F. S., made September 12—fifteen hours after death.

The dura is moderately adherent to the inner surface of the cranial bones. Under the pia, along the vessels of the convexity, is an exudate, cloudy on the superior surface and distinctly purulent toward the base. There is a purulent exudate at the base over the tuber cinereum, corpora albicantia, optic tracts, and posterior perforated space. There is a thick, extensive fibrino-purulent exudate over the lower surface of the pons, medulla, and inner half of both lobes of the cerebellum. There is not as much exudate along the vessels of the other parts of the base as there is on the lateral surfaces of the brain.



On lifting up the brain some greenish pus was found coming from the opening into the antrum. A probe passed into the antrum opening entered a cavity in the temporo-sphenoidal lobe, from which the pus was found to be oozing. About ten grammes of pus escaped. When the brain was completely removed the conditions found were as follows: On the under surface of the left temporo-sphenoidal lobe, at the posterior and outer part, is a small opening, about ⅓ cm. in diameter, leading into a large abscess cavity in the lobe. The edges of the open-

ing are gangrenous. Directly under this, in the dura, is an opening of the same size with a thickened, infiltrated margin. This opening lies just behind the tegmen attici. The dura laterally and posteriorly to the opening is gangrenous for an area of 2 x 1 cm. On stripping up the dura there was found an area of granulation tissue 2 x 3 cm. on its under surface, to the outer side of the perforation. The perforation in the dura leads to a large defect in the tegmen tympani (see *a* in diagram) (which opening was made, in part at least, during the last operation). An examination of the bone showed that the pyramid is carious. In the diagram, *b* represents the opening made to expose the lateral sinus. The part of the sinus which runs posteriorly contains no clot and no pus. The part internal to the field of operation, running along the posterior border of the petrous portion of the temporal bone, is filled with moderately thick pus. At its inner extremity is a small purulent thrombus (at *c*). In the longitudinal sinus and in the left inferior petrosal sinus are white (fat-like) clots lying free in the lumen. The other sinuses are negative.

Examination of Interior of Brain.—Right lateral ventricle moderately distended (contains cloudy fluid). Choroid plexus and ependyma much swollen. Third ventricle not distended. Fourth ventricle negative.

Abscess cavity in left temporo-sphenoidal lobe communicates with the descending horn of the lateral ventricle. The abscess cavity measures 2½ to 3 cm. in width, 4½ cm. in length, height 2 cm. The abscess is not distinctly encapsulated, margins necrotic and gangrenous. Pus foul-smelling. Choroid plexus much swollen. Lining wall of the left lateral ventricle is softened and greenish in color, especially at the site of the optic thalamus.

X in the diagram shows the point just above which is the opening in the dura leading to the brain abscess.

Diagnosis.—Caries of pyramid. Thrombosis of lower part of left lateral sinus. Old abscess in left temporo-sphenoidal lobe, communicating with antrum through a fistula in tegmen tympani. Purulent meningitis secondary to perforation of abscess into lateral ventricle.

Remarks.—The facts of this case, and the history as far as it could be established, seem to indicate that the patient had been suffering from chronic otitis with occasional purulent discharge. It is true no perforation was found when she applied at the dispensary before her admission to the hospital, and the tympanic membrane showed hardly any changes, but this is a circumstance occasionally met with in very extensive mastoid disease. The symptoms from which she suffered since the

onset of her last illness were those of mastoid disease with infective sinus phlebitis and systemic infection.

To quote from Macewen's classic description:

"The cessation of otorrhea coincident with accession of persistent otalgia extending into cephalalgia, high temperature with marked fluctuations, vomiting and rigors, ought to be regarded as pointing in the direction of thrombosis of the sigmoid sinus."

Besides these cardinal symptoms there are a few corroborating the diagnosis: the edematous area behind the mastoid, the extreme tenderness of this region, the tenderness and slight swelling of the deep tissues in the upper part of the posterior triangle, and the sensitiveness to pressure in the upper course of the jugular, all symptoms pointing to phlebitis of the veins connected with the sigmoid sinus: the mastoid vein, the deep posterior venous plexus of the neck, emptying into the condylar vein and the jugular vein.

The optic neuritis of low degree is likewise commonly met with in the beginning of sigmoid thrombophlebitis. There was not a single sign on admission to indicate the presence of a brain abscess. Nor is this a rare occurrence. On the contrary, it might be put down as a rule that where sinus phlebitis is complicated with either brain abscess (if the latter is not too extensive) or with meningitis the symptoms of an infective sinus thrombosis general mask those of cerebral or cerebellar abscess completely and those of meningitis partially (Macewen, page 267). This is especially true of abscesses in the temporo-sphenoidal lobe, which as a rule do not produce any characteristic local symptoms. The production of hemiparesis on the opposite side (by involvement of the capsula interna) or of sensory aphasia (if the abscess be on the left side, as in this case) may be considered the exception rather than the rule. So that for the diagnosis of cerebral abscess one has to depend more on the general symptoms present in the initial stage of the abscess than on any focal symptoms. An abscess in the latent stage can hardly ever be diagnosed, especially when masked by sinus phlebitis. The terminal stage of abscess producing edema of the brain with symptoms of brain pressure, or causing meningitis by reaching the arachnoidal space, or showing the dramatic symptoms of perforation into the ven-

tricles, frequently elucidates a hitherto unclear clinical condition.

Considering the conditions found at the postmortem examination, the abscess in the temporo-sphenoidal lobe was of longer standing, and accordingly in the latent stage. As in many cases of this kind, it communicated through a fistulous opening (at the site of which brain substance, dura, and bone were adherent) with the middle ear, into which its contents occasionally drained themselves. The site of the bony erosion was, as is usual, the roof of the tympanic cavity. According to a statistic made by Koerner, a fistulous opening connecting the abscess with the original focus in the temporal bone is met with in 42 per cent. of the cases of brain abscess of aural origin; whereas the autopsy made it appear most probable that the abscess was of long standing, and the history of the last illness placed the accession of the sinus phlebitis five days back from her admission to the hospital. There is not a single circumstance which would make it probable that the abscess was caused by the sinus phlebitis. This is perfectly in accord with a statement made by Jansen,[1] who expressly states that in none of his cases of sinus phlebitis complicated by brain abscess were there reasons found for assuming that the abscess had been induced by the sinus phlebitis.

From the course of the illness it is probable that upon the accession of the sinus phlebitis the hitherto dormant abscess was brought into a stage of irritation and progression. It is possible that this occurred without any outside interference; but it is also possible that the handling at the time of the operation and at the dressings caused the result. However this may be, in the second half of the patient's illness the symptoms of meningeal irritation became more pronounced. This irritation was most likely produced by oozing of pus into the ventricle until it terminated in real perforation; this latter, to judge from the characteristics and well-known symptoms, must have taken place less than twenty-four hours before death. The purulent meningitis found at the autopsy was caused either directly through the encephalitis reaching the brain surface or more likely induced by the pus oozing into the ventricles, from where it found its way into the arachnoidal space.

[1] Archiv. f. Ohrenheilkunde, vol. xxxv., page 372.

XXIX.

REPORT OF ANESTHESIAS, 1900.

By Eugene H. Eising, M.D.,

HOUSE SURGEON.

General Surgical Service.	
Division I.	532
Division II.	553
Gynecological Service	308
Eye and Ear Service	203
Total	1,596

In both of the divisions of the General Surgical Service the number of chloroform administrations far exceeds that of ether. This preference for chloroform narcosis has been characteristic for many years.

The drop method of administration is employed, and, used in this way, chloroform is regarded as equally safe to ether inhalation.

Schleich's general anesthetics have been entirely discarded since June 30, 1898, after an extensive trial at the hospital covering a period of seven months. During this time these anesthetics were administered in about 500 cases.

Chloroform is used in routine practice. Practically the only contraindications recognized are advanced renal disease; endocarditis with disturbance of compensation; myocarditis, especially of an alcoholic nature, and extreme fright of operation. The existence of chronic endocarditis together with arteriosclerosis is looked upon as indicating, by preference, the use of chloroform.

It has been noted frequently that respiratory failure is of far more common occurrence than cardiac paralysis during the administration of chloroform.

For a time it had become almost routine practice, in the adult, to precede the narcosis by an injection of morphine. This practice is of decided benefit in the management of alcoholics.

Many major operations, such as herniotomies demanding

extensive dissection and resection of omentum, gastrostomies and colostomies, were performed under local anesthesia in both of the divisions of the general service. The choice of the anesthetic has usually been eucaine B, on account of its non-toxic properties. One operation for gastrostomy was continued under eucaine after the subarachnoid injection failed to induce anesthesia.

Ether narcosis is preferred by the chiefs of the gynecological and eye and ear services, chloroform being used only for operations of short duration.

A number of cases of severe bronchitis and pneumonia have followed the use of ether, and this was noted to have occurred most frequently during the seasons in which influenza prevailed.

GENERAL SERVICE, DIVISION I. Total, 532.

General Anesthesia.

Chloroform	349
Ether	45
Nitrous oxide gas	28
Nitrous oxide gas to ether	12
Chloroform to ether	56
Ether to chloroform	4
Total	494

Local Anesthesia.

Subarachnoid, cocaine		3
Cocaine, 2%	1	
" 4%	2	
" 6%	5	
" 10%	1	
		9
Eucaine B, 4%	1	
" 6%	24	
		25
Ethyl chloride		1
Total		38

General Service, Division I.—The preference, mentioned above, for chloroform is noted in the statistics, this anesthetic being used more than seven times as often as ether.

Nitrous oxide gas is reserved only for operations of short duration and for patients in whom it is thought unwise to use any other anesthetic.

Nitrous oxide gas to ether is a method that has met with much favor in both of the divisions of the general service.

The patient is saved all that mental excitement which occurs early in ether administration, and the narcosis becomes complete within three or four minutes. Changes from chloroform to ether, and *vice versa*, are made at the discretion of the anesthetist after consulting with the operating surgeon; such change being deemed advisable only when the patient bears the first anesthetic badly.

Subarachnoid cocaine anesthesia has been used in this division in three cases and with varying success.

One case only deserves mention, this occurring in a boy 9 years old, whose condition demanded extensive drainage and resection of the hip joint. The boy's condition was very low and general anesthesia was contraindicated. Cocaine, 1/8 grain, was injected in the usual way into the subarachnoid space. After a few minutes cutaneous anesthesia to pain had resulted, but a benumbed sense of touch persisted. Incision was made and the head of the femur removed. Incision through fascial planes and muscles seemed to be accompanied by most pain. Bone anesthesia seemed to have been perfect.

The other case referred to above was followed in no way by any change in cutaneous sensibilities; the operation was then continued under eucaine local anesthesia.

One death resulted from chloroform. This occurred in a patient whose general condition was very poor as a result of chronic sepsis. She had a chronic peritonitis, purulent in character, which was overlooked on account of the obscurity of the symptoms, together with a sacculated empyema which had followed pneumonia.

The patient, although having been strenuously advised against the use of general anesthesia, insisted upon its administration. This death was primarily one of cardiac failure.

GENERAL SERVICE, DIVISION II. Total, 553.

General Anesthesia.

Chloroform	365
Ether	25
Nitrous oxide gas	26
Nitrous oxide gas to ether	53
Chloroform to ether	37
Ether to chloroform	4
	510

Local Anesthesia.

Cocaine, 2%	5
" 4%	2
" 6%	4
Eucaine, 2%	4
" 3%	1
" 6%	22
Nirvanin	3
Ethyl chloride spray	2
	43

General Service, Division II.—In this service also the use of chloroform predominates, its application being eight times as frequent as that of ether.

Nitrous oxide gas followed by ether was used more extensively. The method employed is as follows:

The patient is placed in the reclining position. Nitrous oxide is administered only to a degree of moderate narcosis, and then the full ether cone substituted for the gas. At the time of change to ether there is some choking and cyanosis, which often appears alarming. The laryngeal spasm soon subsides and the patient breathes deeply the ether vapor.

Upon recovering the patient recollects only the pleasant sensations caused by the nitrous oxide and is entirely ignorant of any choking sensations or resistance on his part.

Nirvanin, a new local anesthetic representing a more soluble form of orthoform, was tried upon a few occasions. Its chief recommendation is that it is said to be devoid of toxic properties when used in the largest doses necessary for local anesthesia.

Several major operations have been done under local anesthesia, in this service eucaine B, 6 per cent., being preferred. Besides herniotomies, one case of gastrostomy and one inguinal colostomy were done under eucaine local anesthesia.

GYNECOLOGICAL SERVICE. Total, 308.

General Anesthesia.

Chloroform	149
Ether	97
Nitrous oxide gas	17
Nitrous oxide gas and oxygen	1
Chloroform to ether	21
Nitrous oxide gas to ether	14
Ether to chloroform	6
	305

Local Anesthesia.

Cocaine, 6%	1
Eucaine, 8%	2
	3

Gynecological Service.—The anesthetics and their method of manipulation appertain in this service as in the preceding.

The chief of the gynecological service displays a preference for *ether over chloroform*, with the exception of those cases demanding operations of short duration.

Nitrous Oxide Gas and Oxygen.—This anesthesia was induced in one case.

The patient was one who had a slight cardiac lesion. The anesthesia, though not perfect and not accompanied by complete relaxation, seemed to provide an entirely safe narcosis.

An operation for imperforate hymen with hematometra and hematocolpos was done under cocaine anesthesia.

EYE AND EAR SERVICE. Total, 203.

General Anesthesia.

Chloroform	41
Ether	90
Nitrous oxide gas	4
Nitrous oxide gas to ether	2
Chloroform to ether	2
	139

Local Anesthesia.

Holocaine, 1%	5
Cocaine, 4%	10
" 5%	18
" 6%	3
" 10%	10
	46

Eye and Ear Service.—The preference in this service for ether narcosis is shown in the statistics, chloroform being used only when ether is thought to be contraindicated on account of age or some pulmonary or renal complication.

Adenoid vegetations were removed under nitrous oxide anesthesia, but this is not recommended.

XXX.

A CASE OF DERMOID CYST OF THE MEDIASTINUM, WITH REMARKS UPON THE ETIOLOGY AND EMBRYOLOGY, AND A SURVEY OF RECENT CASES.

By F. S. Mandlebaum, M.D.,

PATHOLOGIST.

A brief pathological account of the following case was published in the Mount Sinai Hospital Reports, Volume I., 1898, but a minute description has purposely been delayed in the expectation that another instance of this rare disease might present itself. In this report no cognizance has been taken of differential diagnosis, nor has a detailed account been given of the cases hitherto tabulated by previous writers on the subject. The history of the case follows.

Fanny G., aged 30 years, a native of Russia, was admitted to the hospital on January 24, 1898. Her family history was entirely negative. She had been married seven years, and was the mother of three children, the youngest of which was five weeks old. She gave no history of any previous acute illness or of rheumatism, syphilis, or tuberculosis. She had never suffered any injury. Ten months before admission she noticed a small swelling on the right side of the chest anteriorly, above the breast, and at the level of the third rib. The swelling was not tender to the touch nor red in color, but it occasionally caused slight pain. The tumor did not increase in size until four months ago, when it began to grow suddenly, and one month ago attained its present size. She had not noticed any glandular swelling or any disturbance in lactation, and had continued to nurse her infant. Aside from the presence of the tumor, she considered herself in perfect health, being free from all febrile disturbance or other symptoms.

Status Presens.—The patient is tolerably well nourished, and a physical examination of the internal organs fails to reveal the presence of any organic disease. Opposite the third

rib on the right side of the chest anteriorly is a tumor the size of an orange, the skin over it being freely movable. The mass is evidently adherent to the underlying tissues, and the tissues at its base appear to be somewhat indurated. The tumor is neither tender nor sensitive, and it gives a distinct sense of fluctuation. Aspiration by means of a small trocar reveals the presence of thick, yellowish fluid of a honey-like consistency. There are no physical signs referable to compression of blood vessels, nerves, or any of the mediastinal contents. Cough and expectoration are absent, and no pulsation of the tumor is noticeable.

Operation.—Three days after admission Dr. Gerster decided to explore the tumor, and the patient being anesthetized by Schleich's mixture No. 3, an incision four inches long was made over the long axis of the mass. The pectoralis major and minor muscles were divided parallel to their fibres and the cyst was exposed. It was so firmly attached to the pectoralis minor muscle that upon dividing the fibres of the latter the cyst was ruptured, and a thick, brownish fluid containing small particles of gritty matter was evacuated. The wall of the tumor was more widely opened, and there was exposed to view a multilocular cyst, one small pocket after the other containing a similar fluid. The last pocket incised was found to lead from the thoracic cavity by an extension of the cyst through an opening between the third and fourth costal cartilages. More fluid welled up through this opening, which was found, on probing, to lead deeply into the thorax. Through the enlarged opening, by means of a scoop, a considerable amount of thick fluid, gritty, calcareous matter, and strands of hair were removed from the intrathoracic portion of the cyst. In order to expose the latter, two inches of the third rib near its costal end were resected. The patient was turned upon her side and the contents of the cyst thoroughly washed out. This exposed to view a large cavity occupying nearly the entire anterior mediastinum, the cyst wall being attached to the pericardium, diaphragm, and right pleura. The extrathoracic portion of the cyst wall was dissected away, several large drainage tubes were introduced into the cavity, and the wound was packed with gauze.

During the division of the intercostal muscles the right pleural cavity was accidentally opened, on account of the dense adhesions, and, to avoid any possible subsequent involvement, this opening was carefully sutured and two inches of the ninth rib in the posterior axillary line were resected and a drainage tube was inserted. After the operation the patient's temperature was 102.4° F., pulse 120, and the respirations 50. Her general condition was fair.

For the next four days a profuse discharge from the wound necessitated a frequent change of dressings and irrigation of the cavity. On the fifth day signs of consolidation appeared over the base of the right lung, and the temperature rose to 103.4° F., pulse 100-128, respirations 28-36.

February 2: The cyst cavity still contains much fluid and detritus. Pulsation of the heart can distinctly be seen along the median line, as well as the rising and falling of the diaphragm with each respiration. Dulness, bronchial voice and breathing, and extensive râles are still present over the right lower lobe. The provisional drainage tube that had been inserted in the ninth intercostal space has been removed, and the pleural opening is healing. The patient's general condition is decidedly worse.

February 10: Although signs of resolution have been present since four days, and the temperature is now 100.6°-102° F., the patient's condition has not improved. The urine to-day contains a trace of albumin.

February 13: On account of the difficulty in keeping the cavity properly drained, a siphon arrangement for continuous irrigation is applied. The morning temperature is now 99.6° F., and the evening temperature is 102.2° F., and the patient is suffering from pronounced toxemia, with marked cerebral excitement and involuntary evacuations.

February 25: The cyst cavity is growing smaller in size and the discharge is of a more solid consistency.

March 9: The patient is rapidly emaciating, and an extensive bedsore has developed. The mental condition is unchanged.

March 17: The patient has failed slowly, and died at 9 o'clock A.M.

Postmortem Examination.—The body was examined fourteen hours after death. Marked emaciation and a moderate amount of rigor mortis are present. In the second intercostal space on the right side of the sternum is an oblique incision, 5 cm. long, leading to a cavity about 8 x 6 cm. in size, bounded by the pleura covering the inner surface of the right lung, and by the pericardium. The wall of this cavity varies from 4 mm. to 1 cm. in thickness, is of a firm fibrous nature, and is more or less covered by fatty, granular detritus in which are seen numerous bits of light-colored hair. Here and there are several firm polypoid excrescences springing from the cyst wall and varying in size from a bean to a large walnut. These are also covered with fine short hairs. The sac wall is firmly attached to the lung, from which it cannot be separated. A section made through the wall at this site shows that it is firmly united to the parenchyma of the lung, and several minute fibrous septa seem to extend slightly into the pulmonary tissue,

which appears somewhat compressed at this point. The outer surface of the cyst wall is also attached to the large vessels in the mediastinum by fibrous bands. Several smaller cysts presenting the same general characteristics are seen springing from the large cyst. In one of these is a large polypus measuring 3 x 2 cm.

The lungs are slightly edematous, and a few pleural adhesions are present on both sides. The heart presents a slight dilatation of the right auricle and a moderate concentric hypertrophy of the left ventricle. The liver is congested and somewhat fatty. The spleen is moderately enlarged, amyloid in character, and presents a slight increase in the amount of its connective-tissue stroma. A few small hemorrhagic areas are also seen. All of the other organs examined appear normal. No trace of thymus gland can be found.

Microscopic Examination.—Specimens from various parts of the cyst wall were hardened, cut, and stained, and the following appearances noted:

The cyst wall is firmly united to the pericardium, pleura, and diaphragm by dense fibrous connective tissue. This is especially marked at its connection with the pleura, where no definite demarcation is observed, and small offshoots of fibrous tissue can be seen entering the pulmonary tissue proper. At this situation the substance of the lung shows evidence of compression. Beneath this dense fibrous layer is a fine, loose meshwork of connective tissue rich in blood cells. Many of the smaller arteries show a marked obliterating endarteritis, and here and there are small areas of round-celled infiltration, principally about the blood vessels. A layer rich in cells and vessels is next seen, and it is in this portion of the wall that the skin elements are found. These elements consist of numerous hairs, many of which appear as regularly formed as in normal skin; others again show marked cystic dilatation at their roots. In addition to this, several small bundles of smooth muscle fibre, seemingly, from their size and position with reference to the hairs, erector pili muscles, were observed. Sebaceous glands are present in the greatest abundance, and in most situations are perfectly normal in their general appearance and formation. Only a very few sudoriferous glands are encountered. It is upon the surface of the polypoid excrescences described above that the skin formation is most plainly noted. Here, also, are large portions of adipose tissue. In a few places are small areas of mucous glands with a connective-tissue matrix between the alveoli and their lumen filled with mucin. In one situation a group of spherical vesicles, each vesicle being lined with a single layer of columnar epithelial cells with oval nuclei, is seen. These vesicles are filled with

homogeneous contents that take the usual staining reaction for colloid, and so closely resemble thyreoid glandular tissue that any distinction is impossible. Here and there on the free margin of the cyst wall are small patches of stratified epithelium, and upon all of the nipple-like polypi the epithelial cells take the distinct appearance of the rete Malpighii and are covered with the usual corneal layer of the epidermis. In some places the surface of the cyst wall is necrotic, the cells do not take the stain well, and a granular appearance is noted. No attempt at a formation of bone tissue is observed in any of the sections, nor is any ciliated epithelium present, but in some of the sections, mainly in those cut through the polypoid excrescences, several areas of cartilage cells are seen.

Remarks.—Dermoid cysts of the mediastinum are of such rare occurrence that a glance at the literature of the subject may not be amiss. Hare [1] has collected 520 cases of mediastinal tumors in his monograph, and of this number but eleven were dermoid cysts. In 1,800 autopsies made at the Brompton Hospital, mentioned by Fowler and Godlee, [2] thirty cases of mediastinal tumor were found without a single instance of dermoid cyst. Hoffmann[3] has searched the literature of the subject since the year 1825, and has been able to collect but fourteen cases. He suggests dividing these tumors into three classes:

1. True dermoids.
2. Dermoids containing cartilage and cylindrical cells.
3. Dermoids combined with lymphoid tumor.

That a division into these three groups is not a satisfactory classification will presently be shown in discussing the embryology of the subject. In the case just described the cyst was for a time considered to belong to Hoffmann's first group. After making sections from various parts of the cyst walls, the presence of cartilage was finally demonstrated. Several authors have reported cases of dermoid cyst in the thoracic cavity, but have failed to mention them as originating in the mediastinum. It is the writer's opinion that in most instances the mediastinum will be found to be the original source of the cyst.

Pflanz[4] has made a more careful search of the literature and has collected a series of twenty-four cases, to which he has added a personal case. The patient was a man of 21 years

who presented a cyst in the anterior mediastinum below the right clavicle, and bulging forwards behind the first and second ribs on the right side. The cyst was opened by an operation and drained. It contained hair, fat, and dermoid detritus, and the patient left the hospital with a narrow fistula remaining. The reader is referred to the original article for a careful description of the twenty-four recorded cases.

Ekehorn[5] has reviewed the cases tabulated by Pflanz, and has added to the list five additional cases from the literature and two personal cases. His first case was that of a woman, 21 years of age, with a cyst in the lower portion of the right chest attached to the mediastinum. Bone and cartilage were seen, and between some of the small areas of cartilage ganglion cells and nerve fibres were present; ciliated epithelium was also found. The largest single piece of bone was 1½ x 2 cm. in size, from which several teeth protruded. Its whole appearance was similar to a portion of the upper jaw. The second case was a patient of Dr. Fogman's, in Stockholm, who presented a cyst to the left of the heart and attached to the left lung. Two teeth protruded from a polypoid growth in the cyst cavity. The author did not have access to the account of Smythe's case, which he mentions only by title, so I shall insert it here.

Smythe[6] describes the case of an unknown woman of 30 years who died suddenly. The autopsy revealed the presence of a cyst occupying the entire upper lobe of the left lung and pressing upon the pericardium and mediastinum. The cyst contained dermoid tissue and hair, and in its cavity was found a bony mass weighing eight grammes. The report does not state whether the cyst was a true mediastinal one, but it undoubtedly belongs to this class.

Another case not mentioned by either Pflanz or Ekehorn is that published in 1803 by Kretz.[7] The patient was a man of 30 years of age, in whom the diagnosis of pulmonary tuberculosis and bronchiectasis in the left upper lobe was made, and who subsequently expectorated bits of hair. At the autopsy a tuberculosis of both upper lobes was found. Besides this, in the left upper lobe was a cyst the size of an apple, containing hair, fat, and pus, and to its wall a polyp was attached by a

pedicle. The cyst wall contained skin, hair, and sebaceous glands, and a perforation into a bronchus was demonstrated. This specimen was examined by Kundrat, who agreed that its origin was the anterior mediastinum.

Since the publication of Ekehorn's paper there has been another case reported by Bergmann.[8] This was a man, 38 years old, who presented a painful swelling at the junction of the second and third costal cartilages with the sternum on the right side. A fistulous opening was seen, and when this was enlarged by an incision a cyst containing dermoid material, fine hairs, teeth, and polypoid growths was found.

These polypoid or warty excrescences are present in nearly all of the cases and vary much in general appearance and size. They project into the cyst cavity and are usually supplied with short hairs, most frequently light in color. Occasionally these hairs may be of considerable length. According to Sutton,[9] these polypi may even be genuine mammary glands and may secrete colostrum. In the author's case the epidermis over these growths was thrown into manifold rugæ, giving a distinct papillary appearance to the sections.

There still remain two cases that have not been included in the previously mentioned lists. Ogle[10] described an interesting case in which the polypoid growths presented an unusual appearance. The patient was a man of 28 years, who died as the result of a profuse hemoptysis. The sputum was offensive, and there were physical signs of an empyema. A diagnosis of bronchiectasis was made. At the autopsy a cyst was found in the lower lobe of the right lung, partly in the mediastinum. Its origin was undoubtedly in the mediastinum, whence it invaded the lung, pressing upon a bronchus. The fluid contents looked like blood mixed with pus. Projecting from the wall of the cysts were five or six cream-colored, pear-shaped bodies, "with the rough aspect of skin, resembling the swollen tongue of a corpse," and covered with hair. A large tooth was also found embedded in the wall. The microscopic examination showed stratified epithelium covering fibrous and fatty tissues, and many sebaceous glands and hairs. Inflammatory tissue was present upon the surface.

The other case is the one reported by W. Hale White,[11] of

a cyst, the size of a large orange, attached to the anterior and right surface of the pericardium and adherent to the right lung. This cyst contained dirty, yellowish fluid, with cholesterin, oil globules, solid sebaceous matter, and some loosely attached hairs.

These cases, together with that of the author, bring the total number of mediastinal dermoids up to a total of thirty-seven.

The presence of bone, cartilage, mucous glands, smooth muscle fibres, connective tissue, and fat, together with thymus and thyreoid elements arising from the mesodermal and entodermal layers, should place many of these cysts in the group of teratomata, if a finer distinction is to be attempted. In but two cases have I been able to find thymus gland tissue present. Marchand [12] describes a cyst with two processes extending upwards along the trachea to the thyreoid gland, containing thymus tissue and Hassall's corpuscles, and Pinders [13] also describes lymphoid cells and thymus tissue in the first of his two cases.

Thyreoid tissue has been described only by Waldeyer,[14] who reports a cyst occupying the lower half of the right chest with a pedicle extending upwards to the thyreoid gland. This pedicle contained blood vessels and thyreoid tissue. In my case, as described above, there were small vesicles lined with columnar epithelium, which must be considered thyreoid gland. Of Hoffmann's third group, dermoids combined with lymphoid tumor, there is but one recorded instance. Pinders describes a cyst occupying the anterior mediastinum from the first to the fifth rib, which contained dermoid elements and was combined with lymphosarcoma. Metastases were found in the left lung.

The thick, honey-like contents discovered by aspiration in our case has been described by Löwenmeyer,[15] who reports the case of a man dying with severe signs of dyspnea. The left chest was filled with a tumor mass tightly adherent to the pericardium and diaphragm. Virchow studied this tumor, and found it to be a mixed type of growth, containing spindle and giant cells in parts, elsewhere distinctly striated muscle fibres (myoma striocellulare) and multilocular cysts containing thick, honey-like fluid. The lining of the cysts was partly epidermis and partly ciliated epithelium. Some structures resembled em-

bryonal lung tissue, other parts showed tissue of a carcinomatous nature. This case must then be classed with the teratomata, or with this variety associated with malignant tumor.

Belonging to this class is also the case of cystosarcoma of the lung arising from a mediastinal dermoid, reported by Jores.[16]

Etiology and Embryology.—For a better comprehension of the etiology of dermoid cysts of the anterior mediastinum, it is necessary to glance at the embryology of the branchial clefts, and of the thymus and thyreoid glands, from which these cysts are believed to originate. According to Born [17] and Hertwig [18] the thymus gland is derived from the entodermal lining of the third gill-cleft. In his earlier writings His [19] described its origin from the ectoderm of the cervical sinus, but three years later he published an article in which he withdrew his former opinion and agreed with the observations first made by Born. Some writers suggest that the thyreoid gland may be an etiological factor in the production of these cysts. Remak, in 1855, first described the origin of the thyreoid from the entoderm of the pharynx, but it required the combined work of Wölfler,[20] Born, and others to show that the median and lateral portions were derived from the floor of the pharynx between the first and second branchial arches, and from the entoderm of the fourth gill-cleft, respectively. According to Minot,[21] as soon as the gill-clefts become open passages, the line of demarcation between ectodermal and entodermal lining cannot be distinguished, on account of the intimate fusion of their respective cells.

It is known that the third branchial arch may dip downwards over the fourth branchial arch, and, becoming united to the side of the pharynx, enclose a part of the precervical sinus, forming a small closed pocket lined with ectoderm. The buried furrow of the third cleft lies in close proximity with the thymus gland, and if, from some exciting cause or irritation, a growth or proliferation originates in this epithelial rest, it is easily seen that by its extension downwards into the thorax a cyst may be formed. This will explain many of the simple dermoid cysts, not, however, those containing elements from all of the three embryonal layers. According to Wilms,[22] teratomata may

arise from a single sexual cell by a displacement or separation of tissue (monogerminal implantation); or they may be due to the inclusion of a rudimentary twin (bigerminal implantation). Wilms has concluded to classify many of the dermoid cysts of the ovary and testicle, representing all three of the germinal layers, with the rudimentary parasites originating from a single sexual cell, and not as a result of the inclusion of a rudimentary twin.

Ekehorn, stating that whereas double monsters are not uncommonly seen, due to abdominal inclusions, and that union of twins by the chest (thoracopagus) also occurs, believes that, in order to explain the multiplicity of tissues found in some dermoid cysts, we must consider them to be formed by the process of bigerminal implantation, one of the twins remaining as a rudimentary undeveloped embryo. This is certainly a most convenient theory upon which to base our observations concerning those cysts that contain tissues from all of the embryonal layers. That these dermoids should consequently be classified with the teratomata is beyond question, and therefore I would suggest the following division:

1. True dermoids containing only ectodermal structures.
2. Teratomata, or dermoids with the addition of structures from the entoderm and mesoderm.
3. True dermoids or teratomata, with the addition of tumor formation.

This classification, I believe, fulfils all demands made by the histological findings in the cases in the literature more satisfactorily than Hoffmann's division of these rare growths, and is the result of my study of every reported case. It will serve, too, as a basis for grouping future cases, since it is founded on the histological evidence of all published dermoid cysts of the mediastinum.

For the privilege of publishing this case, and for the courtesy in furnishing the clinical data, I am indebted to Dr. A. G. Gerster, Attending Surgeon to the hospital.

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XXXI.

1899.

NUMBER OF PATIENTS TREATED DURING THE YEAR.

	Males.	Females.	Adults.	Children	Total.
Remaining from last report.	99	106	181	24	205
Admitted during the year..	1,660	1,405	2,483	582	3,065
Discharged during the year.	1,430	1,225	2,214	441	2,655
Died during the year.....	244	164	280	128	408
Remaining in hospital.....	85	122	170	37	207

Whole number treated during the year.....	3,270
Discharged cured.....	1,786
" improved.....	691
" unimproved.....	171
Transferred to other institutions.....	7
Deaths.....	408
In Hospital November 30, 1899.....	207
Percentage of deaths.....	12.48%

DIED EACH MONTH.

Month.	Year.	Males.	Females.	Adults.	Children.	Total.
December.....	1898	16	10	19	7	26
January.....	1899	15	13	25	3	28
February.....	1899	11	9	15	5	20
March.....	1899	19	6	21	4	25
April.....	1899	24	14	24	14	38
May.....	1899	18	14	19	13	32
June.....	1899	19	25	33	11	44
July.....	1899	25	13	29	9	38
August.....	1899	15	14	26	13	39
September.....	1899	31	16	25	22	47
October.....	1899	24	21	23	22	45
November.....	1899	17	9	21	5	26
		244	164	280	128	408

1900.

NUMBER OF PATIENTS TREATED DURING THE YEAR.

	Males	Females.	Adults.	Children.	Total.
Remaining from last report..	85	122	170	37	207
Admitted during the year...	1,670	1,475	2,509	636	3,145
Discharged during the year..	1,474	1,292	2,237	529	2,766
Died during the year.....	218	158	252	124	376
Remaining in hospital.....	63	147	190	20	210

Whole number treated during the year	3,352
Discharged cured	1,963
" improved	623
" unimproved	174
Transferred to other institutions	6
Deaths	376
In Hospital November 30, 1900	210
Percentage of deaths	11.19%

Died each Month.

Month.	Year.	Males.	Females.	Adults.	Children.	Total.
December	1899	16	9	14	11	25
January	1900	9	11	18	2	20
February	1900	22	16	26	12	38
March	1900	11	11	15	7	22
April	1900	22	20	25	17	42
May	1900	24	17	28	13	41
June	1900	18	15	23	10	33
July	1900	25	13	24	14	38
August	1900	16	16	22	10	32
September	1900	22	7	18	11	29
October	1900	20	14	25	9	34
November	1900	13	9	14	8	22
		218	158	252	124	376

XXXII.

GENERAL SYNOPSIS FOR 1899.

Total number of patients admitted		3,065
Medical patients	1,090	
Pediatric "	358	
Surgical " / Genito-Urinary patients	985	
Gynecological "	433	
Ophthalmic, Aural, and Laryngological patients	199	
Accident Ward		453
Total number of operations		2,220
Surgical / Genito-Urinary	1,256	
Gynecological	644	
Pediatric	89	
Ophthalmic, Aural, and Laryngological	231	
Total number of patients discharged CURED		1,786
Total number of patients discharged IMPROVED		691
Total number of patients discharged UNIMPROVED OR NOT TREATED		180
Total number of deaths		408

GENERAL SYNOPSIS FOR 1900.

Total number of patients admitted		3,145
Medical patients	1,022	
Pediatric "	372	
Surgical "	1,120	
Genito-Urinary patients		
Gynecological "	430	
Ophthalmic, Aural, and Laryngological patients	201	
Accident Ward		592
Total number of operations		1,966
Surgical	1,159	
Genito-Urinary		
Gynecological	494	
Pediatric	77	
Ophthalmic, Aural, and Laryngological	236	
Total number of patients discharged CURED		1,963
Total number of patients discharged IMPROVED		623
Total number of patients discharged UNIMPROVED OR NOT TREATED		183
Total number of deaths		376

GENERAL SYNOPSIS FOR 1899 AND 1900.

Total number of patients admitted		6,210
Medical patients	2,112	
Pediatric "	730	
Surgical "	2,105*	
Genito-Urinary patients		
Gynecological "	863	
Ophthalmic, Aural, and Laryngological patients	400	
Accident Ward		1,045
Total number of operations		4,186
Surgical	2,415	
Genito-Urinary		
Gynecological	1,138	
Pediatric	166	
Ophthalmic, Aural, and Laryngological	467	
Total number of patients discharged CURED		3,749
Total number of patients discharged IMPROVED		714
Total number of patients discharged UNIMPROVED OR NOT TREATED		363
Total number of deaths		784

NUMBER OF PATIENTS TREATED DURING THE YEARS 1899 AND 1900.

Whole number treated	6,622
Discharged cured	3,749
" improved	1,313
" unimproved	345
Tranferred to other institutions	13
Deaths	784

* By a typographical error in Vol. I. of these Reports, the total number of Surgical Patients admitted during 1898 was given as 1,916, instead of 1,016.—ED.

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